
Fan Blade Shake Test Results for the 40- By 80-/80- By 120-Foot Wind Tunnel

William Warmbrodt and Todd Graham

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FAN BLADE SHAKE TEST RESULTS FOR THE 40- BY 80-/80- BY 120-FOOT WIND TUNNEL

William Warmbrodt and Todd Graham*

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SUMMARY

This report documents the shake tests performed on the first set of hydulignum fan blades for the 40- by 80-/80- by 120-Foot Wind Tunnel. The intended purpose of the shake test program is described. The test equipment and test procedures are reviewed. Results from each shake test are presented and the overall findings of the shake test program are discussed.

1.0 INTRODUCTION

This report is a complete documentation of all the fan blade shake test results for the first set of hydulignum fan blades for the NASA Ames 40- by 80-/80- by 120-Foot Wind Tunnel. A summary of the shake test results and the results of blade strain monitoring during operation on fan motors 4, 5, and 6 have been presented in reference 1. For completeness, this report includes the complete shake test procedures (appendix A) and the tabulated test results (appendix B) together with a detailed review of the overall shake test program.

The shake test program included two stages. At the time of installation it was to provide a qualitative estimate of each blade's structural integrity and verification of proper installation. The structural integrity of each installed blade was verified by determining its fundamental bending and torsion modal characteristics (frequency and damping level). Second, shake testing periodically over time should detect gradual changes in blade properties that may have resulted from fatigue damage accumulation. Detection of these changes were to be used to aid in the prediction of accrued structural damage.

The basic hardware necessary for testing included a structural dynamics analyzer, shaker, shaker controller, shake stand, blade bracket assembly, force transducer, and two accelerometers (response and feedback). After this hardware was correctly set up, the following basic procedures were used: (1) the analyzer and shaker controller were initialized; (2) data were taken while the shaker swept through a frequency range of 5-128 Hz; and (3) the transfer function was analyzed to determine frequency and damping for the different modes. The success of the testing was vitally dependent on the proper setup and use of the equipment and on the consistent adherence to the outlined procedures.

The results from the shake test program fall into two categories: results from individual tests and the overall results of the program. From the first test of each

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fan blade set, estimates of the blade/retention system integrity along with baseline values of each blade's structural characteristics were obtained. From these data, one blade was identified as having a significantly lower first bending mode. From the second and third test set, the statistical nature of the data became evident. The blade identified as having a lower first bending mode did not change its properties significantly between any of the first three tests. As a result of this observation, several recommendations were made concerning this blade. The fourth and final shake test data set was brought about because a blade had cracked after its fan motor had been stalled in the 40 by 80 mode with a test section velocity of 264 knots. The finding of this test was that the structural characteristics of the cracked blade and several other representative blades had not changed significantly.

One of the overall findings of the shake test program was that the data taken were primarily statistical in nature. Potentially, the shake test results were to determine whether or not damage could be detected by this testing. It was observed that the shake test program could not detect changes in structural properties caused by the magnitude and type of crack that had developed in one blade.

2.0 PURPOSE OF TESTING

Qualitatively the shake test was to provide estimates of the blade/retention system integrity and fatigue damage accumulation. To provide estimates of the blade/retention system integrity, each blade was shake-tested prior to operation to obtain baseline data. Baseline data included the transfer function and the frequency and damping levels for all the defined modes between 5 and 128 Hz. Initial concerns were to have blades with fundamental bending frequencies that would put them in a condition for possible four-per-rev resonance at a normal operating speed (180 rpm, 4/rev = 12 Hz). These blades would be closely monitored to ensure safe operation. Estimates of possible fatigue damage accumulation were to be monitored by detecting changes in the frequency and damping levels from the baseline results.

Once all of the data had been obtained it could be analyzed to identify the structural response characteristics of the blades. These characteristics would include the various defined modes with their corresponding mode shapes. The structural integrity was to be determined by identifying blades that deviated from the baseline characteristics of all the blades. Both the qualitative and quantitative results were dependent on the accuracy and the reliability of the data. But these data were not known prior to testing, so if the results demanded it, the approach taken in testing may have been modified. For the testing that was done, the procedures used were considered reliable.

3.0 DESCRIPTION OF TESTING

3.1 Test Equipment

The central piece of equipment used for testing was a Hewlett Packard 5423A Structural Dynamics analyzer. This analyzer performed all of the calculations necessary to determine the transfer function for each blade. Using the displayed transfer function with the operator positioning cursors around the mode to be analyzed, the frequency and damping for each of the defined modes could also be calculated. The

required input signals for operation were the conditioned signals from the force transducer (mounted on shaker) and the response accelerometer (mounted on blade).

The shaker and shaker controller were the components required to shake the blades. The electrodynamic shaker used had a 35-lb force rating. The shaker controller was used to sweep the shaker excitation through the desired frequency ranges. It also controlled vibration to a limited amount which was determined adequate for good response characteristics by the test engineer. In the shake tests that were performed, shaker-rod displacement was kept to 20 mils. To perform this function, the controller used a signal from a feedback accelerometer that was mounted on the shaker diaphragm.

The mounting hardware for the shaker included a stand to mount the shaker firmly to the tunnel floor and a blade bracket assembly used to grasp the blade. The response accelerometer and the force transducer used separate charge amplifiers to condition the input signals for the analyzer. The feedback accelerometer signal was conditioned internally in the shaker controller. For a detailed description and list of the hardware mentioned, and the other miscellaneous cables, bolts, etc. used see pages 51-56 and figures A1-A6 of appendix A. Figures A10-A13 of appendix A show the hardware in the typical operating setup.

3.2 Test Procedures

The procedures used fall into two categories, installation and operation. Installation of the hardware was important for correct testing. Hardware installation included the following items: setting the fan blade into position, installing the shaker, installing the blade bracket, and hookup of instrumentation. The correct operation of the shaker and analyzer were vital to consistency of data obtained.

A general outline of the procedures used for testing are presented:

1. The shaker controller and analyzer were initialized.
2. Operation of the shaker was initialized and the analyzer took data as the shaker swept through a frequency range of 5-128 Hz.
3. The analyzer operator interactively determined the frequency and damping of modes identified from the transfer function.
4. The analyzer was set up for the next run. This procedure was repeated for both accelerometer locations on each blade.

For a detailed description of the procedures used for testing see pages 35-44 of appendix A.

4.0 RESULTS

4.1 First Test: October 1981 to January 1982, All 90 Blades

The first test was for the structural verification testing of the blades. Figures 1-10 show histograms of frequency and damping levels for all 90 blades obtained

during the first shake test sequence. The installation sequence of the 15 blades on each fan motor (FM) by blade number is given in table 1.

The following is a summary of the results obtained:

1. Quantitative estimates of the blade/retention system were obtained.
2. A repeatable test procedure was established and baseline data were obtained for each blade to estimate fatigue damage accumulation over the tunnel's lifetime.
3. One fan blade was identified as having substantially different nonrotating dynamic properties.
4. Eight modes with their corresponding frequency and damping levels were identified for all 90 blades.
5. Ten blades were shown to have fundamental bending frequencies below 12 Hz.
6. The shake test procedure was verified as reliable with a frequency repeatability of 2%. Damping level determinations were less repeatable (as expected).
7. No blades would experience a four-per-rev resonance with the fundamental bending mode under normal operating conditions of 180 rpm (see fig. 11).
8. Due to the large number of blades (five) on fan motor four (FM 4) with fundamental bending frequencies below 12 Hz, FM4 blades were tested a second time.

Appendix B, pages 65-245, contains the frequency and damping tables and transfer functions for this set of shake test data.

4.2 Second Test: March 1982, All FM 4, FM 5, Partial FM 6

This second test was brought about because of the large number of blades on FM 4 with fundamental bending frequencies below 12 Hz. This testing was performed after all fan motors had been operated up to 180 rpm yet with no net thrust. One third of the blades on FM 6 and all the blades on FM 5 were tested to see if their behavior had changed differently, if at all, than those on FM 4 after the single and multiple motor operations. During this shaking, a sensitivity check was made to the amplitude of excitation and its effect on the determination of the first fundamental bending mode. Figure 12 shows the results from this test. It was seen that an excitation amplitude of 20 mils was sufficient to determine the fundamental frequency. No conclusion could be made about the effect of excitation amplitude on higher modes as the blades were only shook through a frequency range of 5-15 Hz.

The following is a summary of the results obtained:

1. Repeatability was shown to be approximately plus or minus 0.2 Hz in the fundamental bending mode.
2. Of the blades shook, all fundamental bending frequencies decreased except blade 23 which increased by 0.02 Hz, yet it still remained at 0.7 Hz below the next lowest blade on FM 4 (first test it was approximately 0.9 Hz below).

3. Definition of the higher bending modes became less distinct, although their frequency generally decreased.

4. The fundamental torsion frequency decreased by an average of 0.5 Hz for all of the blades tested.

5. The retention shaft dynamics of blades 23 and 21 (FM 4) were comparable (in response to shaking). This can be seen by comparing the transfer functions of figures 13 and 14 obtained with the shafts somewhat secured and then comparing these functions with the transfer functions on figures 15 and 16 where the retention shafts were not secured.

6. The first three identified modes were not sensitive to excessive tightness of the blade bracket installation.

The following recommendations were made concerning blade 23 on FM 4 and future shake tests.

1. Leave blade 23 in place for integrated systems testing (IST) of the tunnel.

2. After completion of simultaneous six-motor operation, reshake blade 23 and several other representative blades on FM 4.

3. Whether blade 23's fundamental bending frequency changes or not, leave it in place until after completion of integrated systems testing.

4. Upon completing the IST, perform a shake test of all blades.

5. If, after the shake test following the completion of the IST, blade 23 remains over 0.5 Hz from the next lowest blade, serious consideration should be given to blade 23 removal and replacement.

Appendix B, pages 246-318, contains the frequency and damping tables and transfer functions for this shaking.

4.3 Third Test: March 31, 1982, Partial Set on FM 4

The purpose of this third test was to see if there were any significant changes in blade 23's properties after simultaneous six-motor operation. Blade 23's fundamental bending frequency changed only slightly. The other blades tested increased in frequency by an average of 0.16 Hz. Appendix B, pages 319-328, contains the frequency and damping tables and transfer functions for this shaking.

4.4 Fourth Test: October 1982, Partial Set on FM 4

This fourth test was brought about because blade 30 on FM 4 developed a crack near the root when FM 4 stalled in the 40- by 80- mode while operating with a test section velocity of 264 knots. See figure 17 for pictures of the blade crack. It was estimated that the crack was only 0.010 in. deep. Blades 30, 23, and several other representative blades were subsequently tested. The result of this testing was blade 30's static frequency response and damping characteristics did not change any differently than the other blades tested.

Figures 18-21 show the frequency and damping changes with time, all tests included, for modes one and three for blades on FMs 4, 5, and 6. The statistical nature of the data can be seen quite clearly from these figures. Appendix B, pages 329-337, contains the frequency and damping tables and transfer functions for this shaking.

5.0 CONCLUSIONS

The results for all shake testing have been presented for the first set of hydulignum fan blades for the 40- by 80-/80- by 120-Foot Wind Tunnel. A shake test program was established and verified as being reliable. As each test was performed, more insight into the nature of the data was obtained. It was observed that the data for each mode varied over time in a statistical manner. The blade which had a significantly lower fundamental bending frequency than the baseline values for the other blades was monitored closely with respect to time and did not appear to change in its frequency characteristics. Although the fundamental bending frequency of this blade was below 12 Hz for static frequency response, it did not experience a four-per-rev resonance at the normal operating speed of 180 rpm. A significant finding from the cracked-blade problem was that the shake testing of the blades did not pick up any changes in static frequency response caused by the crack. This is most likely because of the small size of the crack which did not impact the load carrying ability of the blade structure.

REFERENCE

1. Warmbrodt, W.: Dynamic Characteristics of the 40- by 80-/80- by 120-Foot Wind Tunnel Drive Fan Blades. Proceeding of the AIAA/ASME/ASCE/AHS 24th Structures, Structural Dynamics and Materials Conference, Stateline, Nev., May 1983.

TABLE 1.- FAN BLADE INSTALLATION SEQUENCE

Clockwise sequence	Blade number					
	Fan Motor One	Fan Motor Two	Fan Motor Three	Fan Motor Four	Fan Motor Five	Fan Motor Six
1	1	72	74	8	53	34
2	2	83	79	32	54	35
3	3	84	80	18	51	38
4	4	65	70	17	50	37
5	5	88	95	19	49	33
6	6	77	73	20	55	41
7	7	87	92	21	57	45
8	9	89	61	23	59	24
9	10	91	67	22	62	44
10	11	93	71	25	63	39
11	12	94	78	26	64	47
12	13	90	82	30	56	46
13	14	60	81	28	68	36
14	15	69	76	29	66	27
15	16	85	86	31	75	48

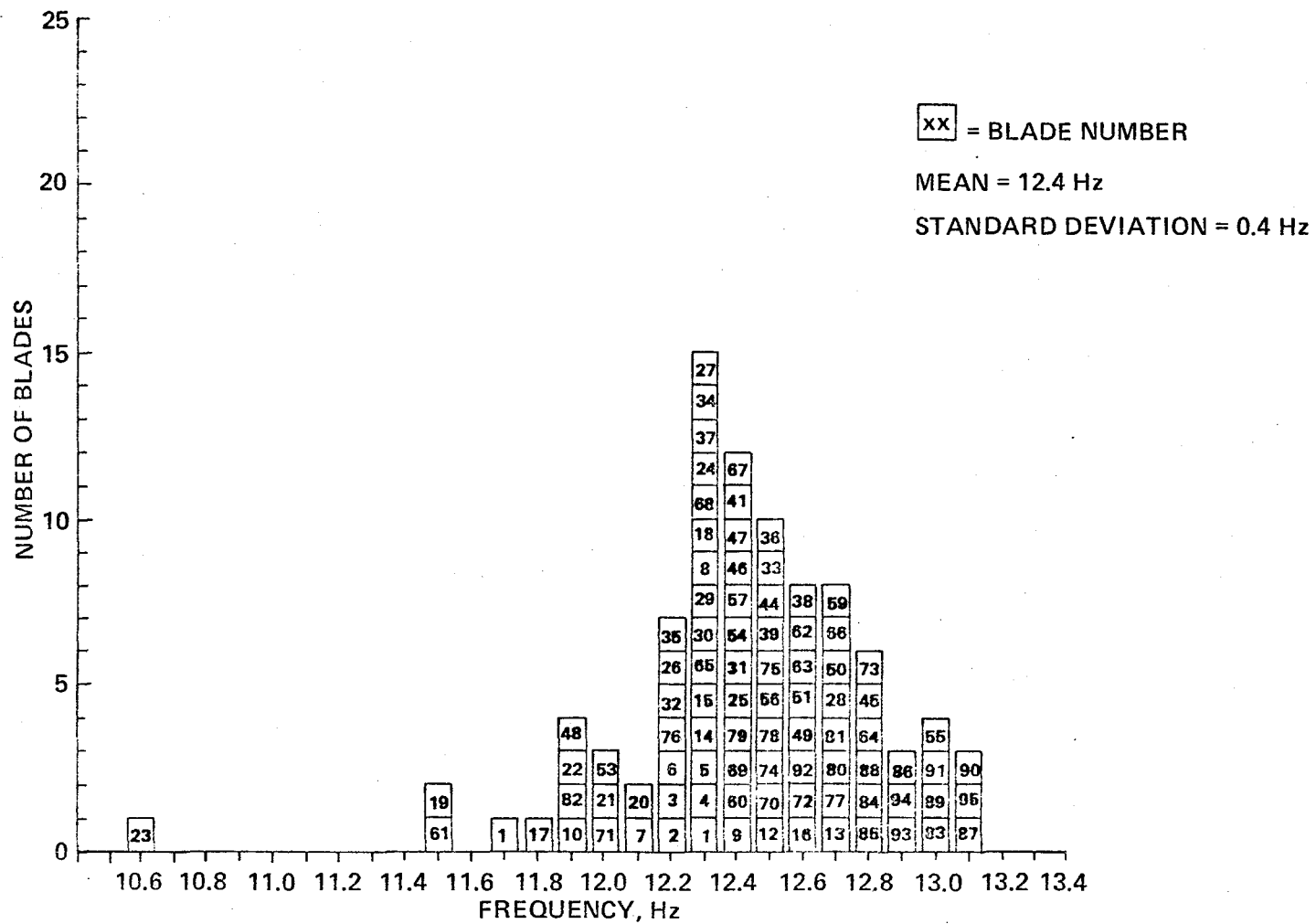


Figure 1.- Fundamental bending mode frequencies, all blades.

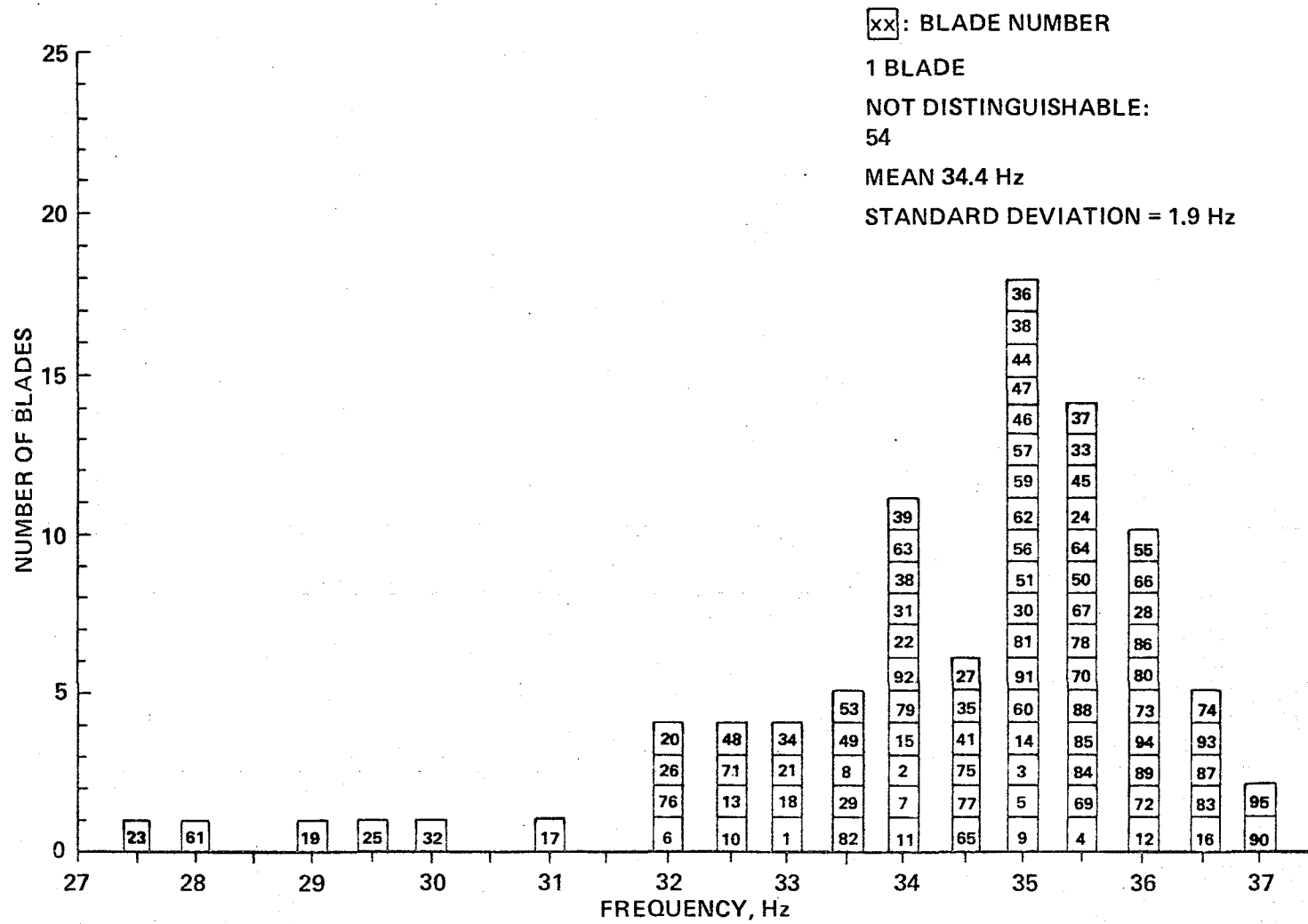


Figure 2.- Mode number two frequencies, all blades.

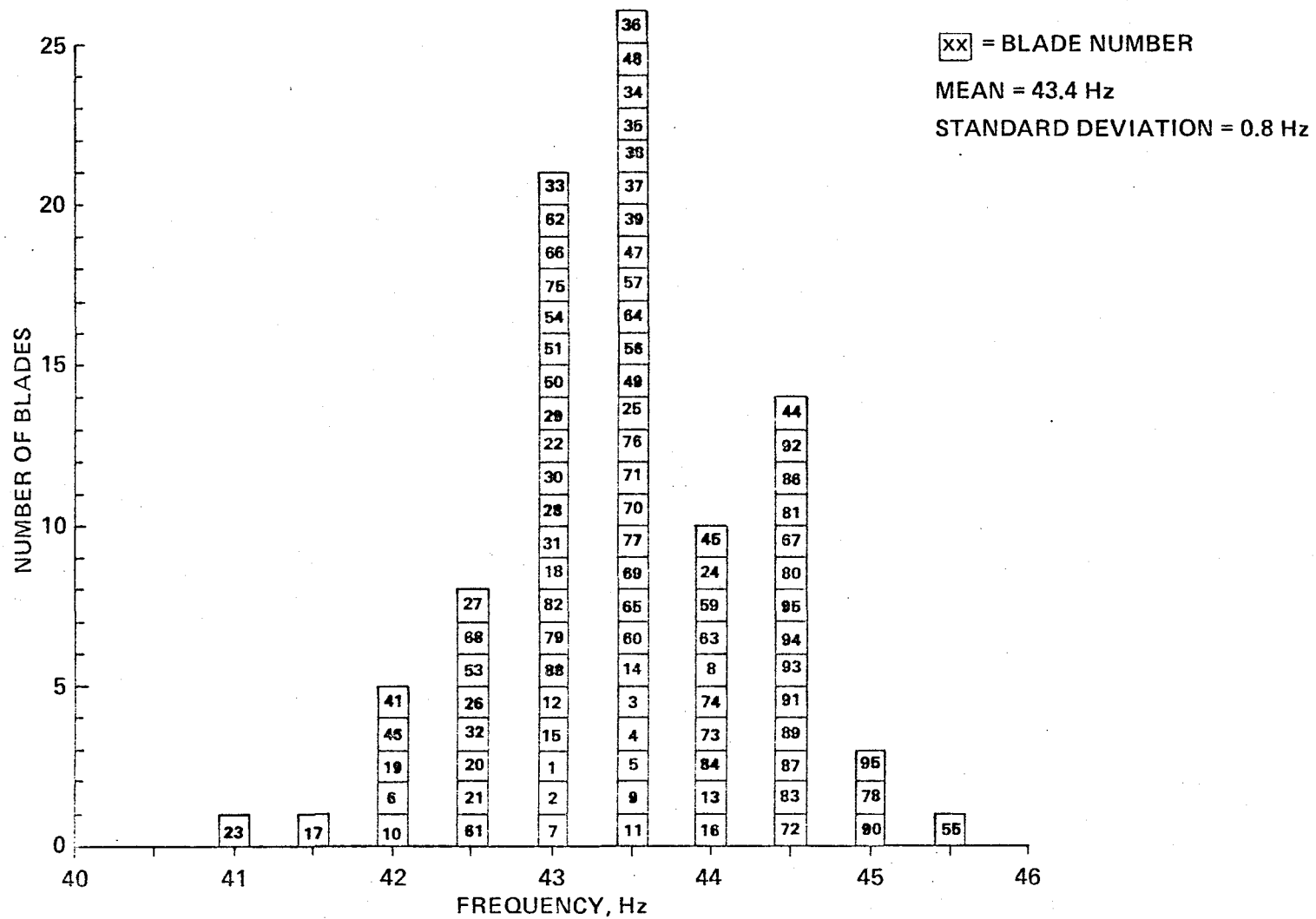


Figure 3.- Fundamental torsion mode frequencies, all blades.

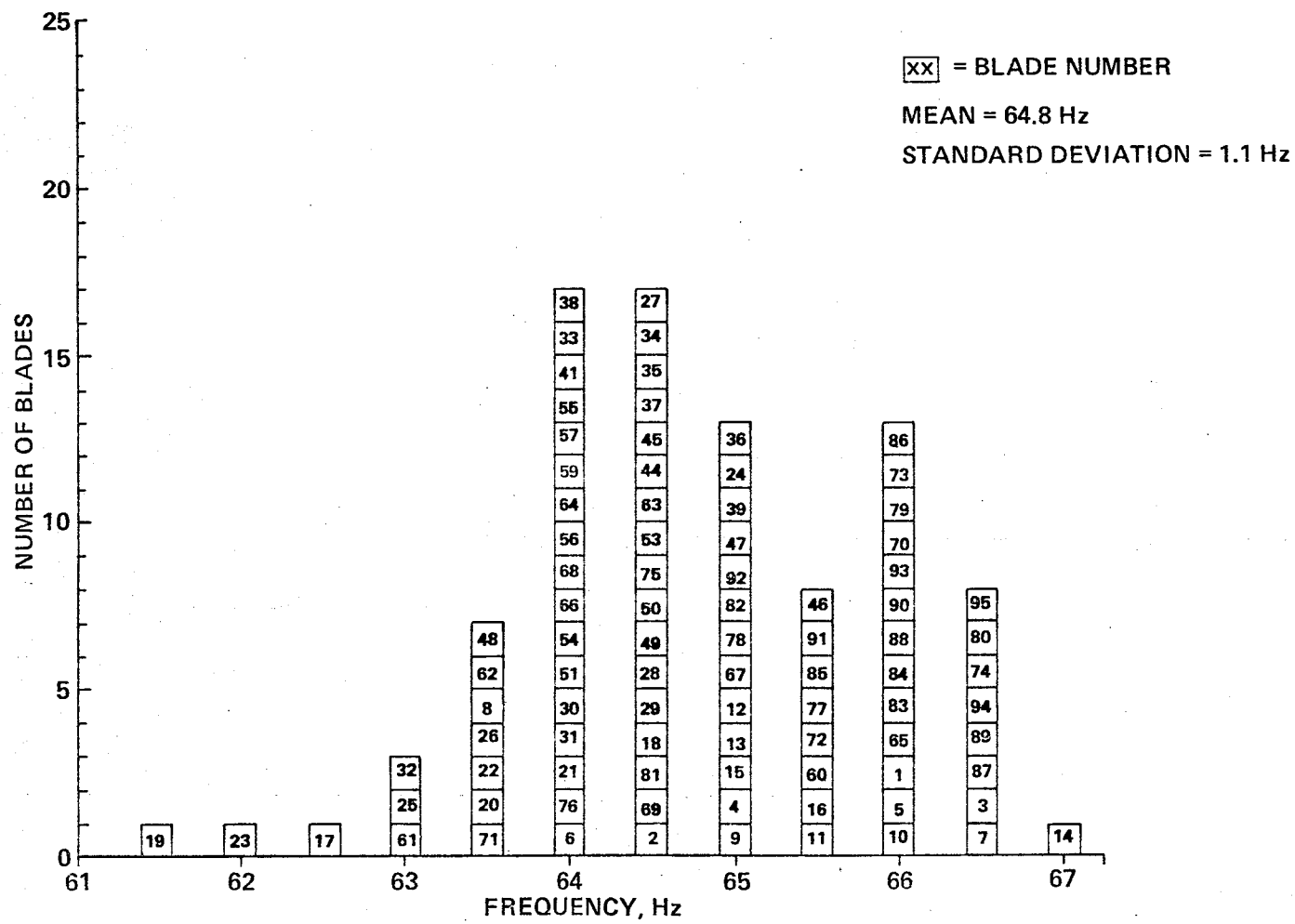


Figure 4.- Mode number four frequencies, all blades.

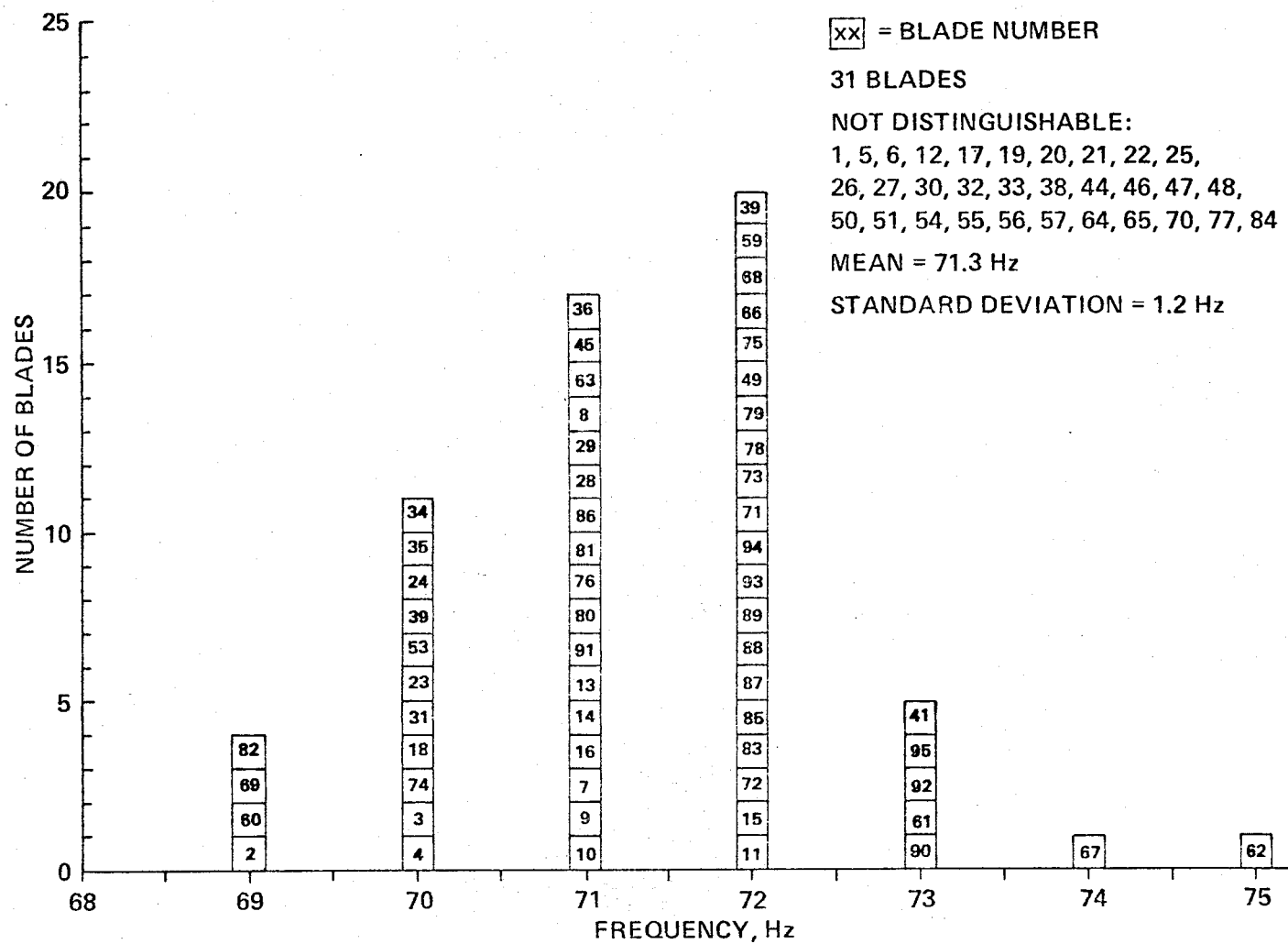


Figure 5.- Mode number five frequencies, all blades.

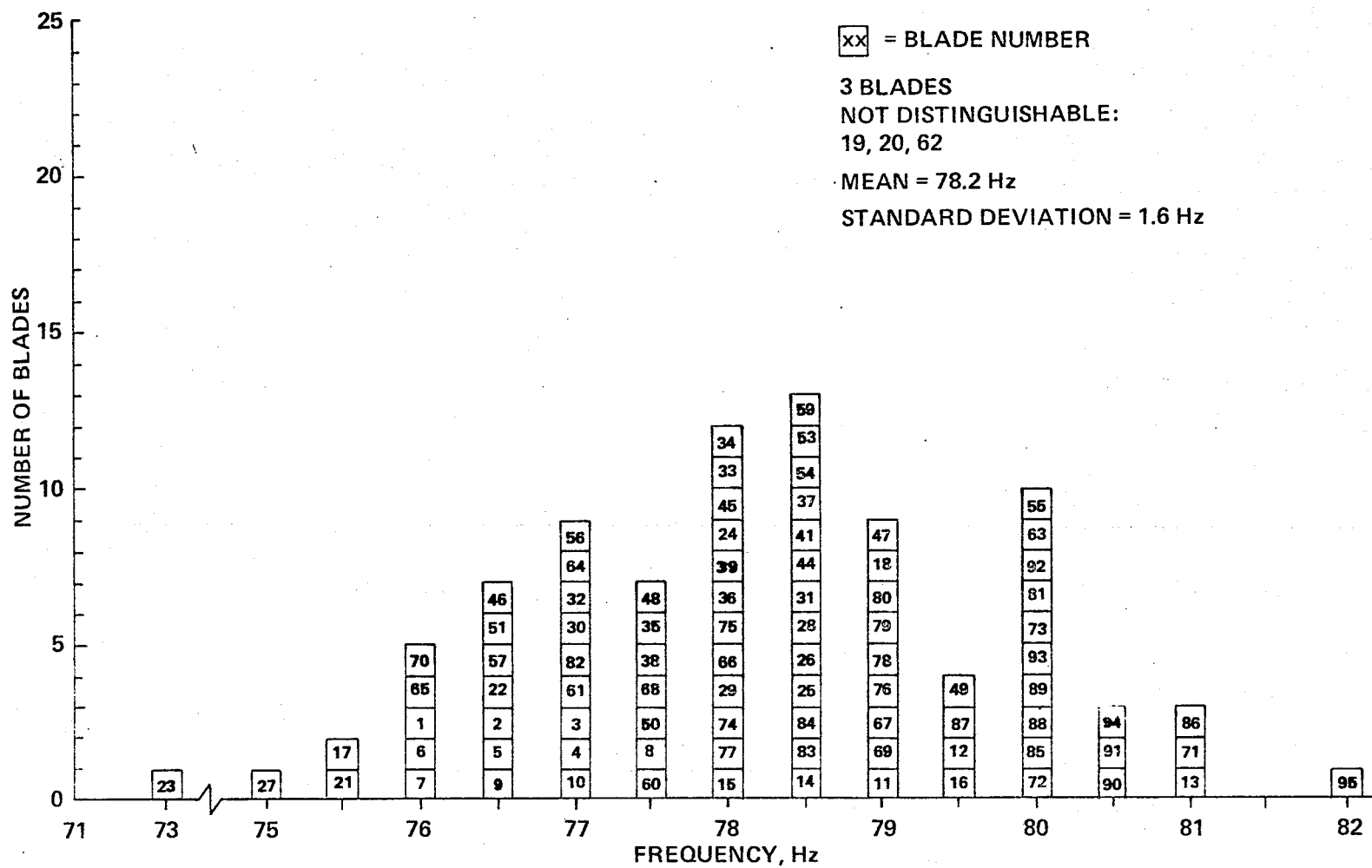


Figure 6.- Mode number six frequencies, all blades.

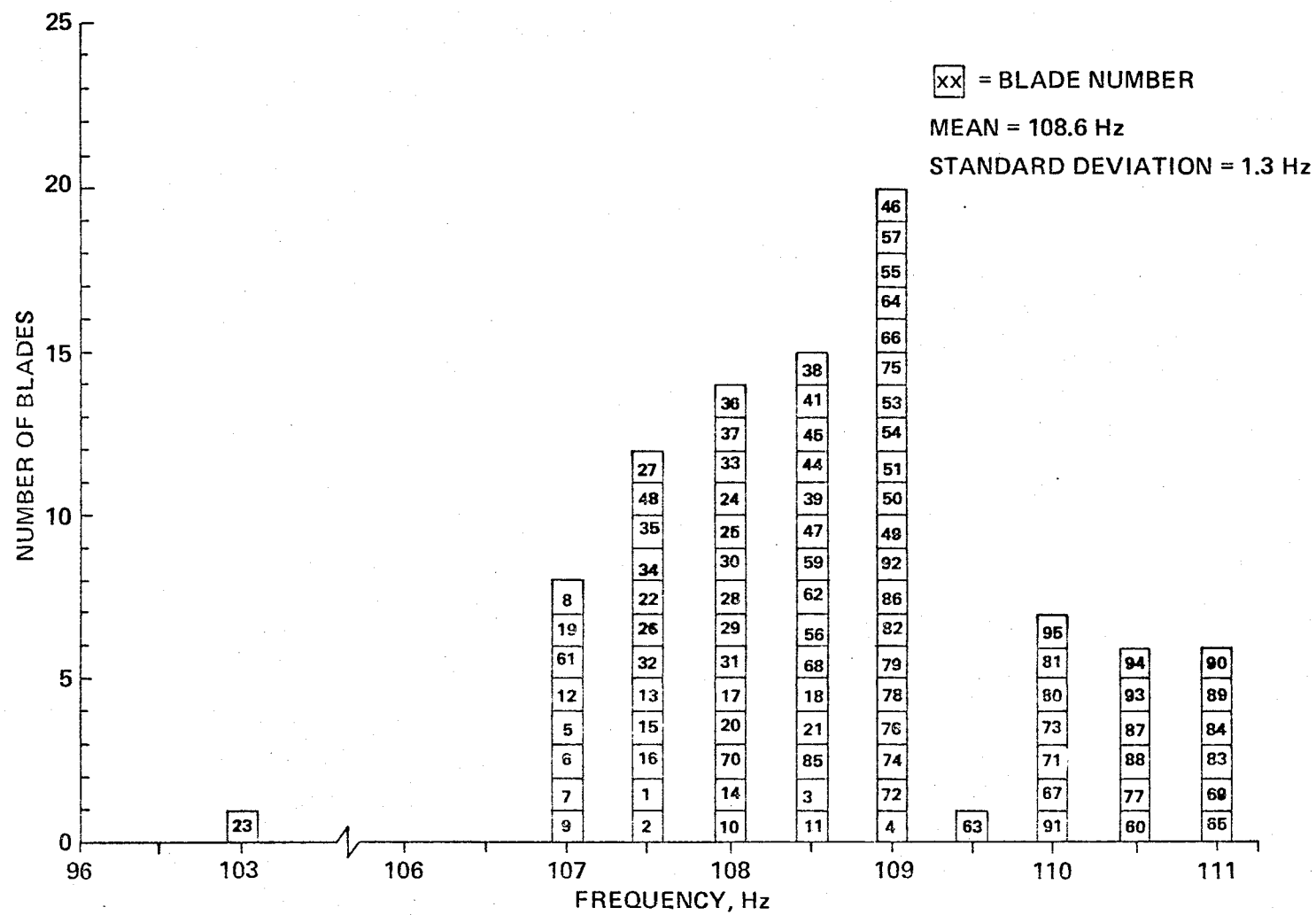


Figure 7.- Mode number seven frequencies, all blades.

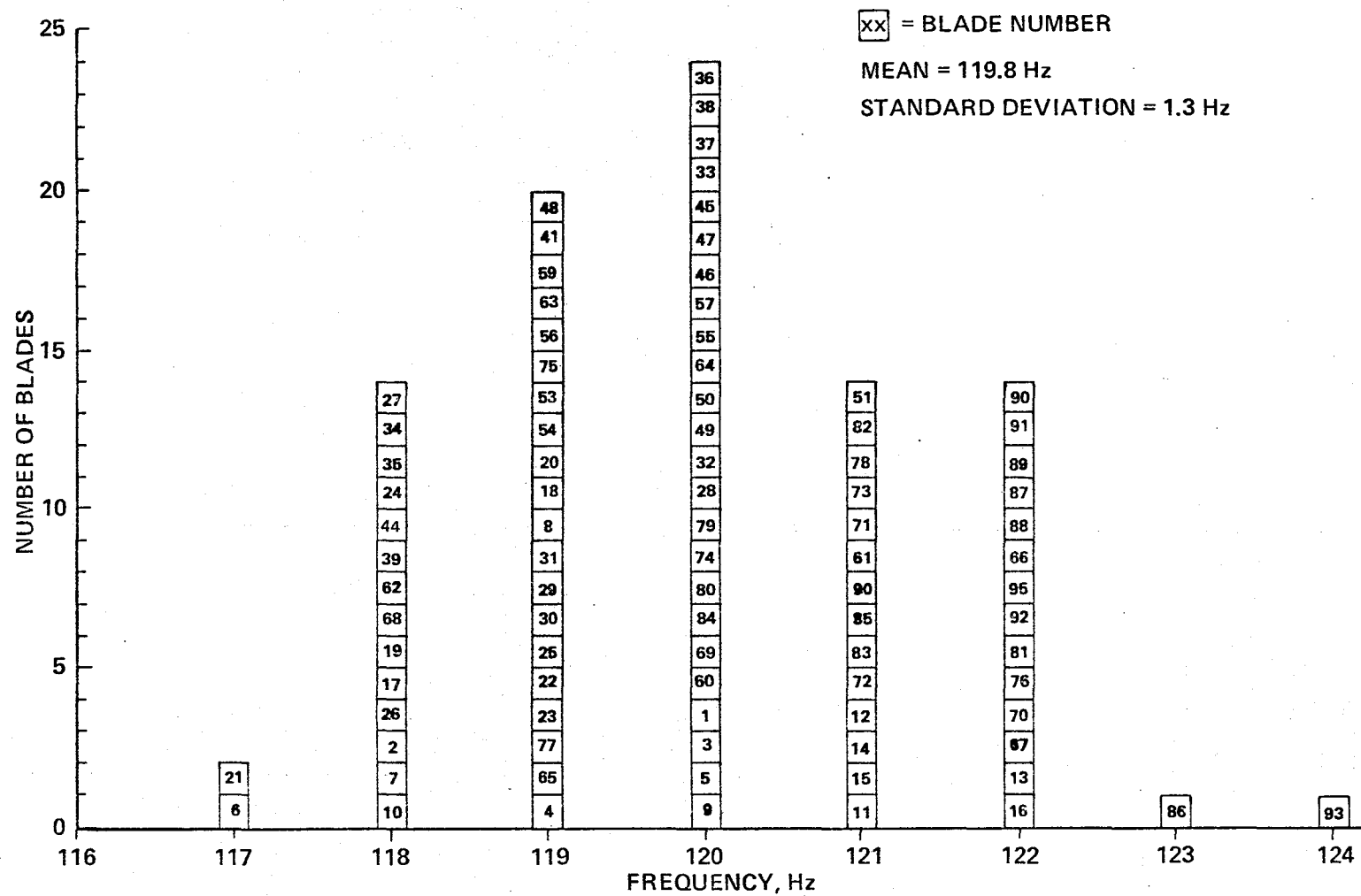


Figure 8.- Mode number eight frequencies, all blades.

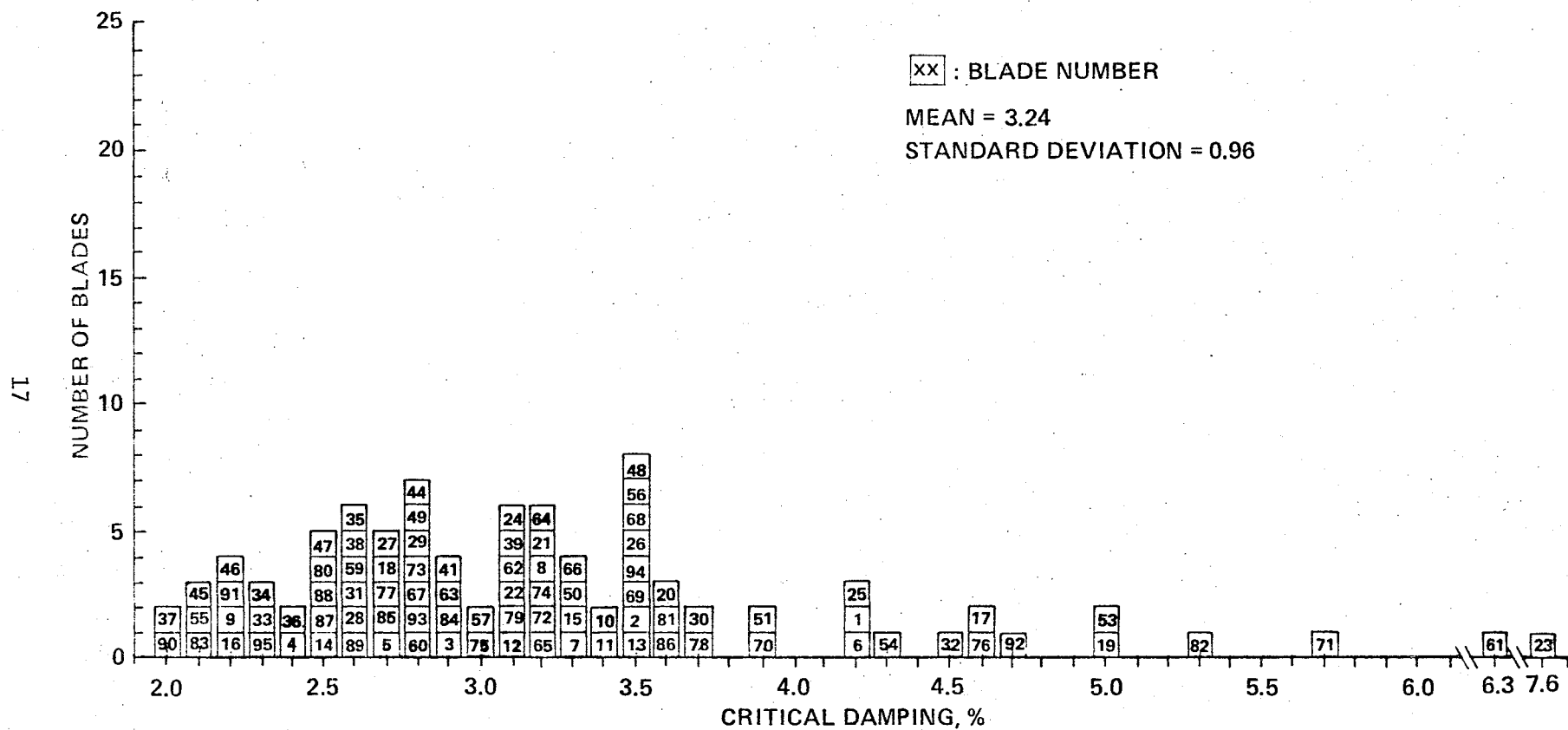


Figure 9.- Fundamental bending mode critical damping, all blades.

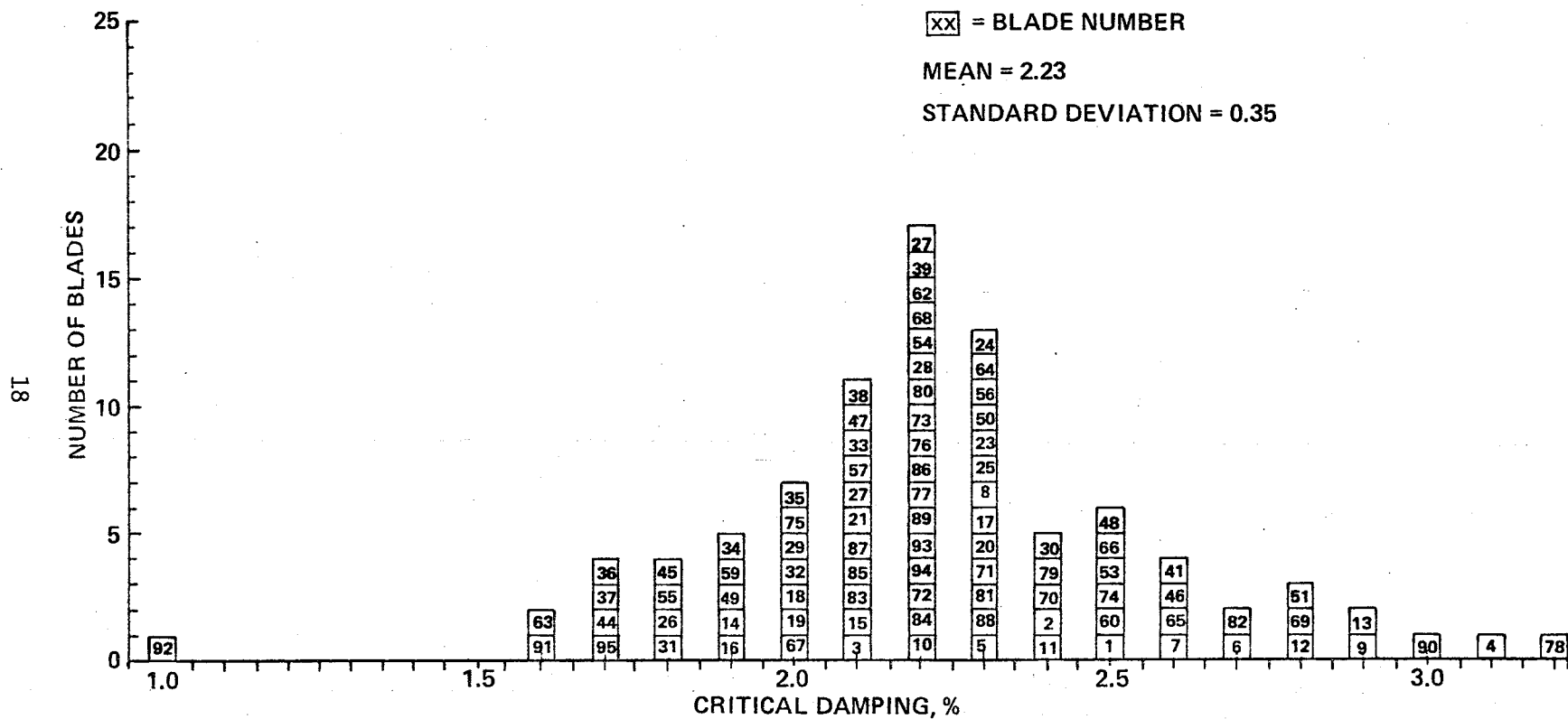


Figure 10.- Fundamental torsion mode critical damping, all blades.

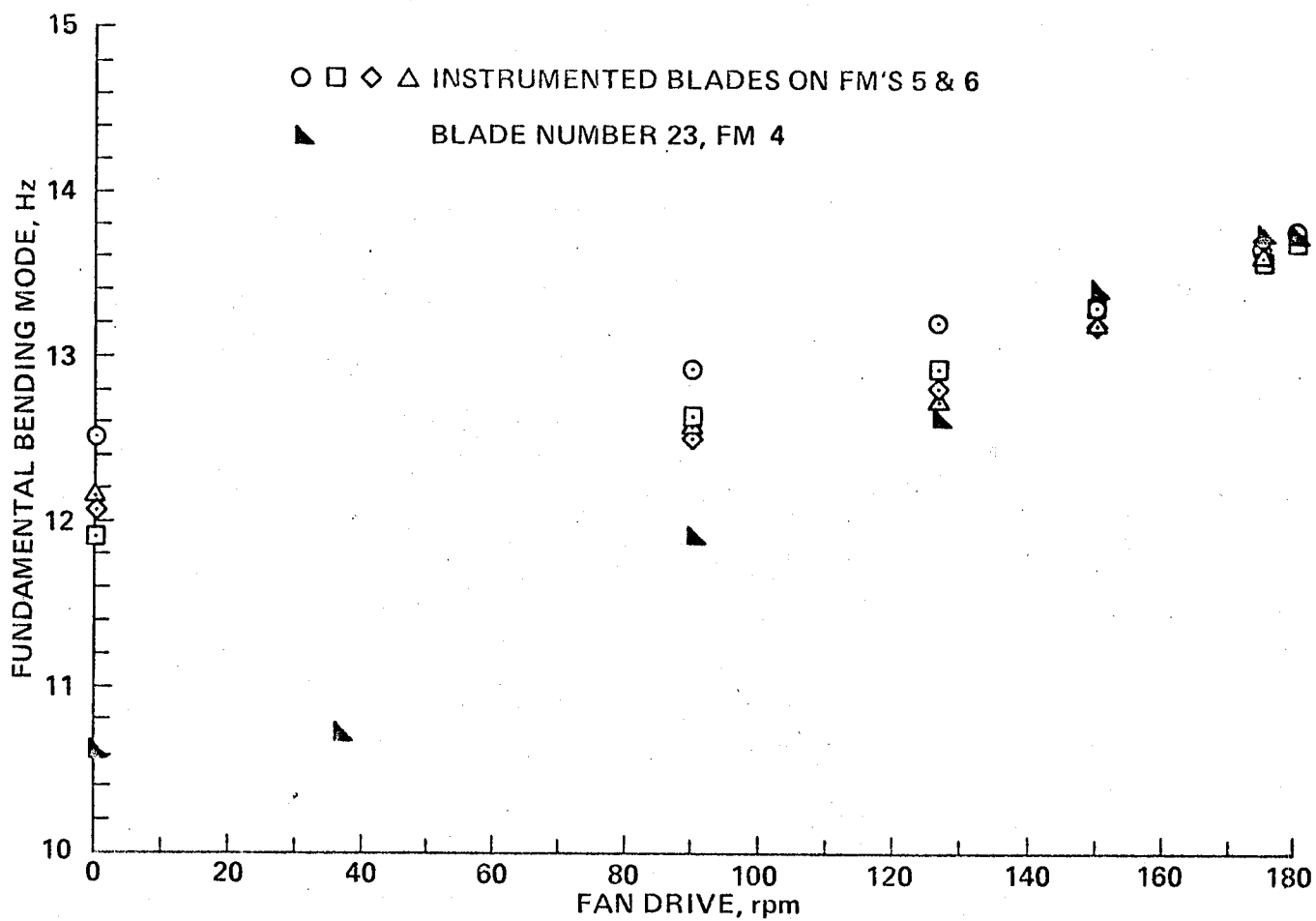


Figure 11.- Blade fundamental rotating bending frequency, flat pitch operation.

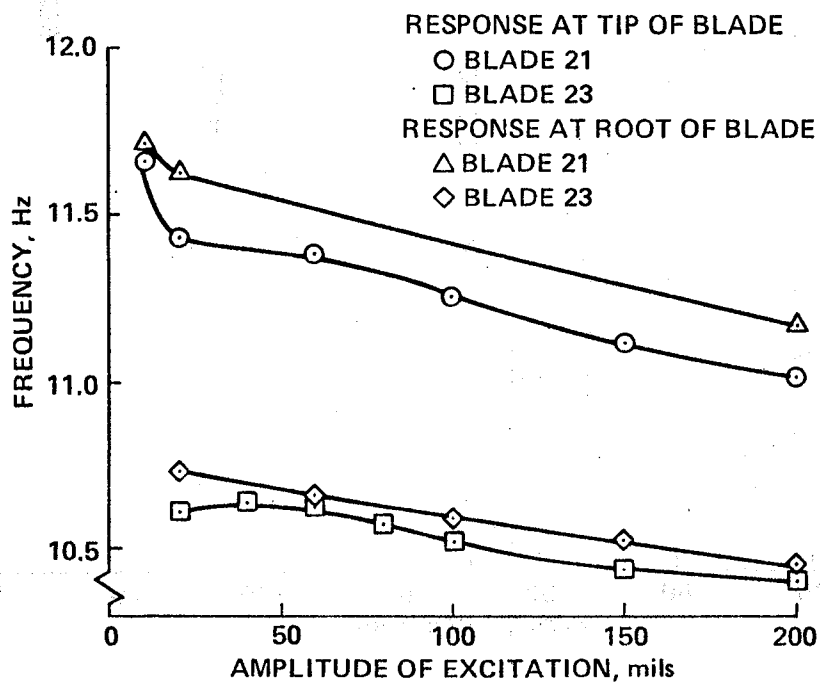


Figure 12.- Fundamental bending mode frequency sensitivity to shaker excitation amplitude.

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.351	71.323	5.586	635.104	3.990
2	29.587	185.900	6.626	1.965	12.346
3	41.251	259.185	3.009	1.242	7.803
4	61.279	385.030	3.801	2.331	14.644
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.575	663.349	3.147	3.324	20.888

TRANS

R#: 22

#A: 325

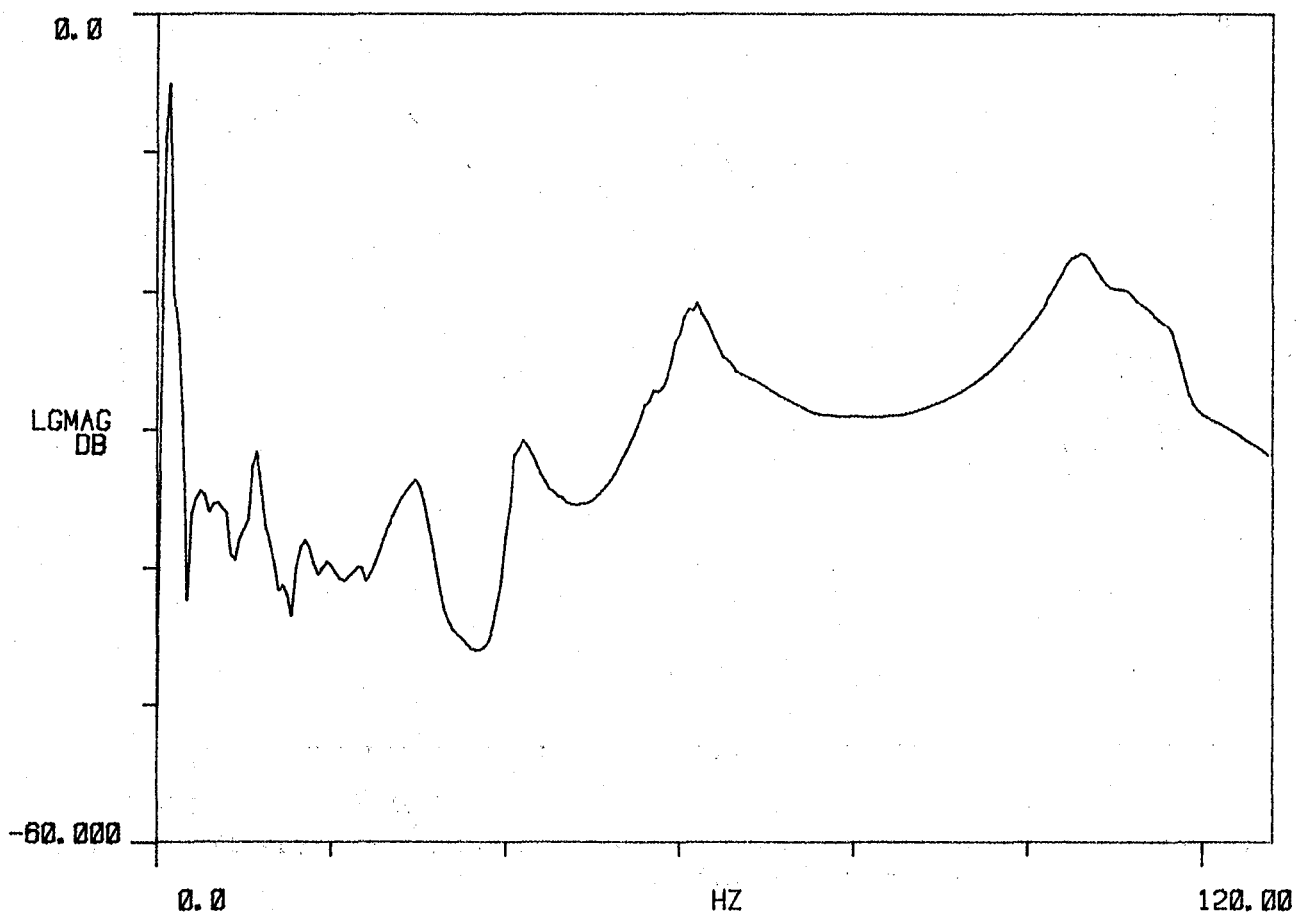


Figure 13.- Frequency and damping table and transfer function for blade 21, retention shaft partially secured.

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.490	65.908	3.185	334.268	2.100
2	30.097	189.107	7.520	2.270	14.261
3	40.096	251.933	3.208	1.287	8.087
4	60.257	378.607	4.993	3.012	18.926
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	101.676	638.851	4.156	4.229	26.571

TRANS
-10.000

R#: 18

#A: 325

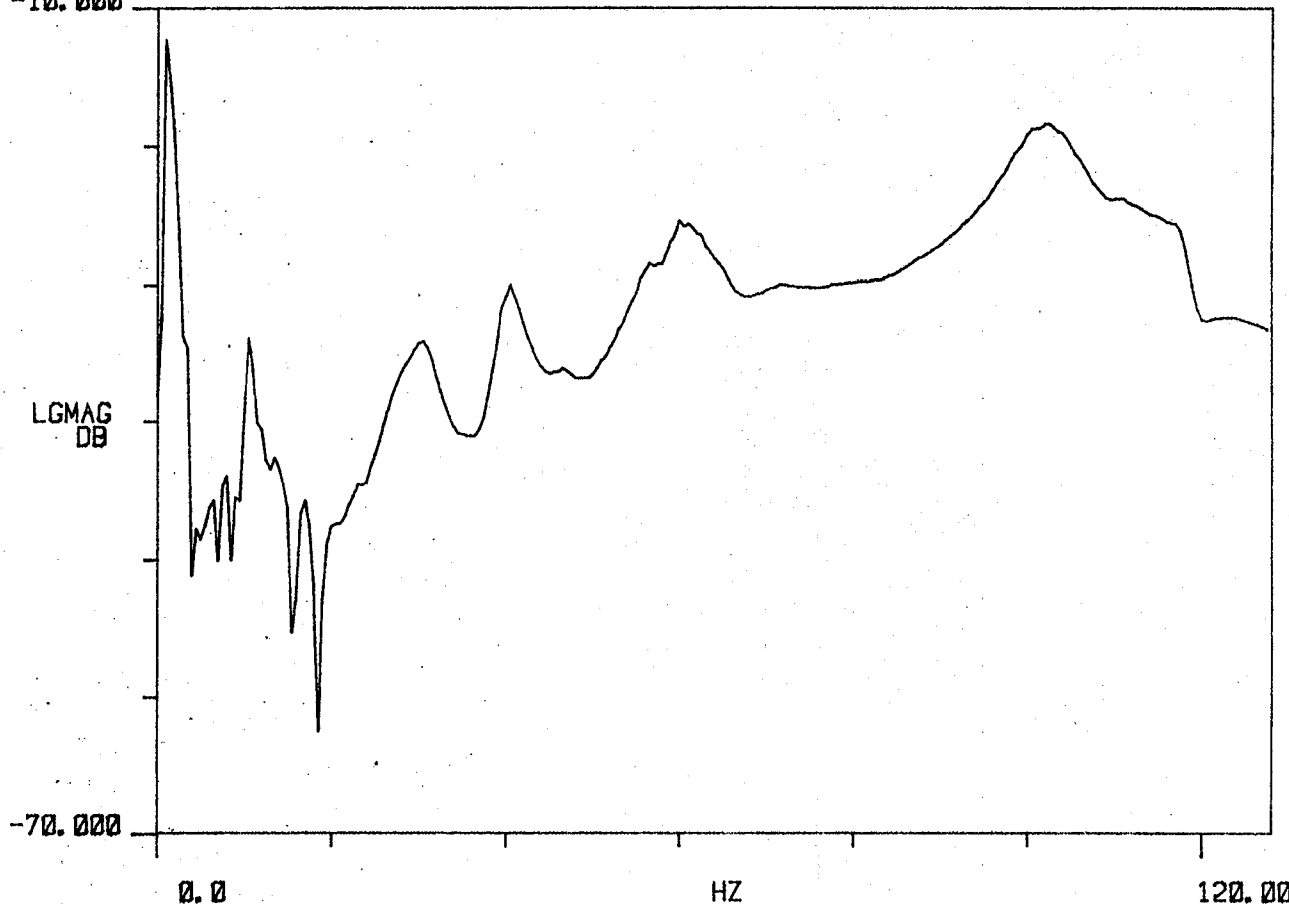


Figure 14.- Frequency and damping table and transfer function for blade 23, retention shaft partially secured.

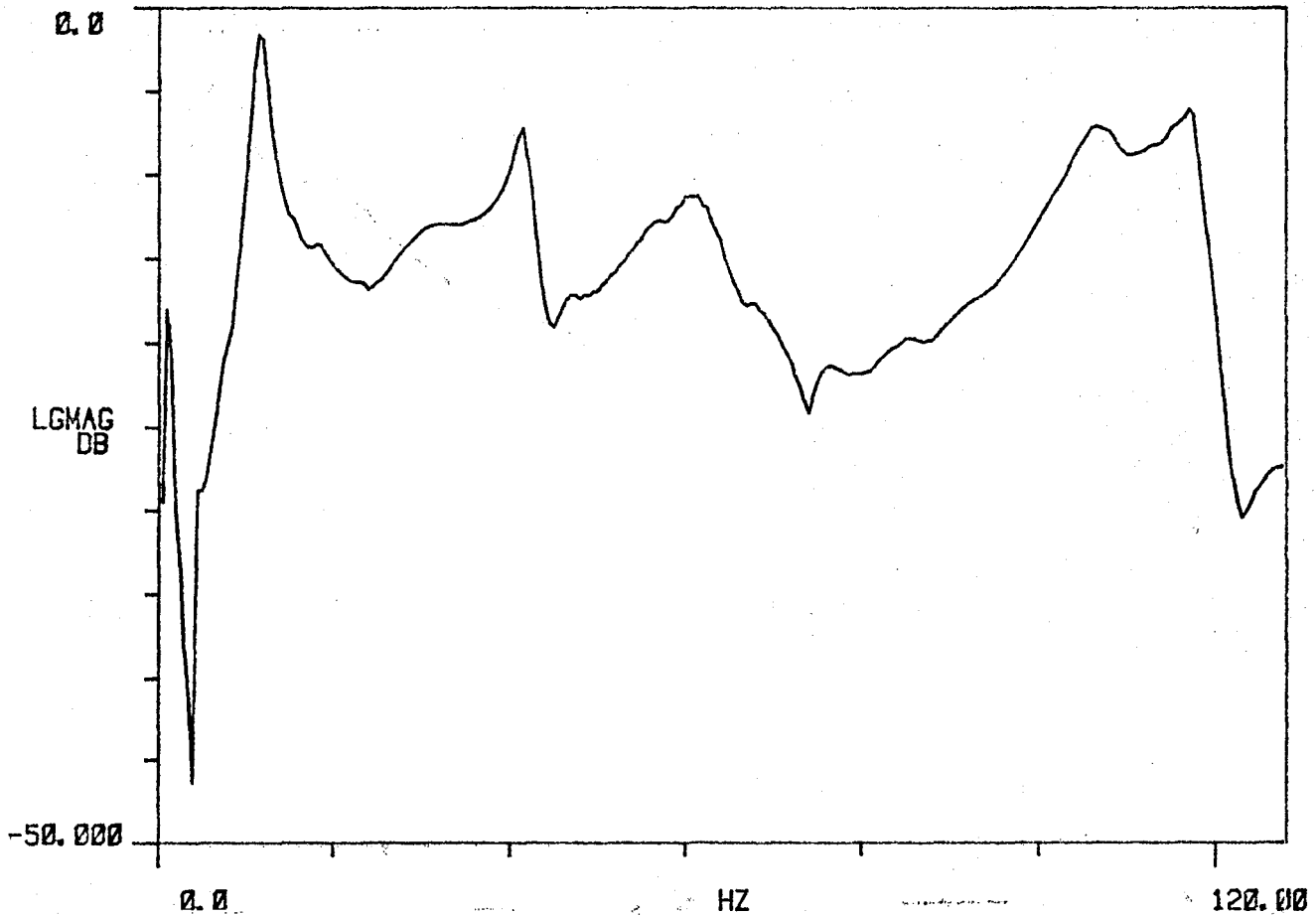
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	$\%$	HZ	R/S
1	11.433	71.834	5.344	611.800	3.844
2	28.437	178.677	18.410	5.326	33.466
3	41.752	262.333	2.552	1.066	6.696
4	61.670	387.484	5.157	3.185	20.011
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	106.326	668.065	3.728	3.966	24.921
8	117.375	737.491	1.627	1.910	12.000

TRANS

R#1 20

#A1 325



(a) Accelerometer position one (near blade tip).

Figure 15.- Frequency and damping table and transfer function for blade 21, retention shaft not secured.

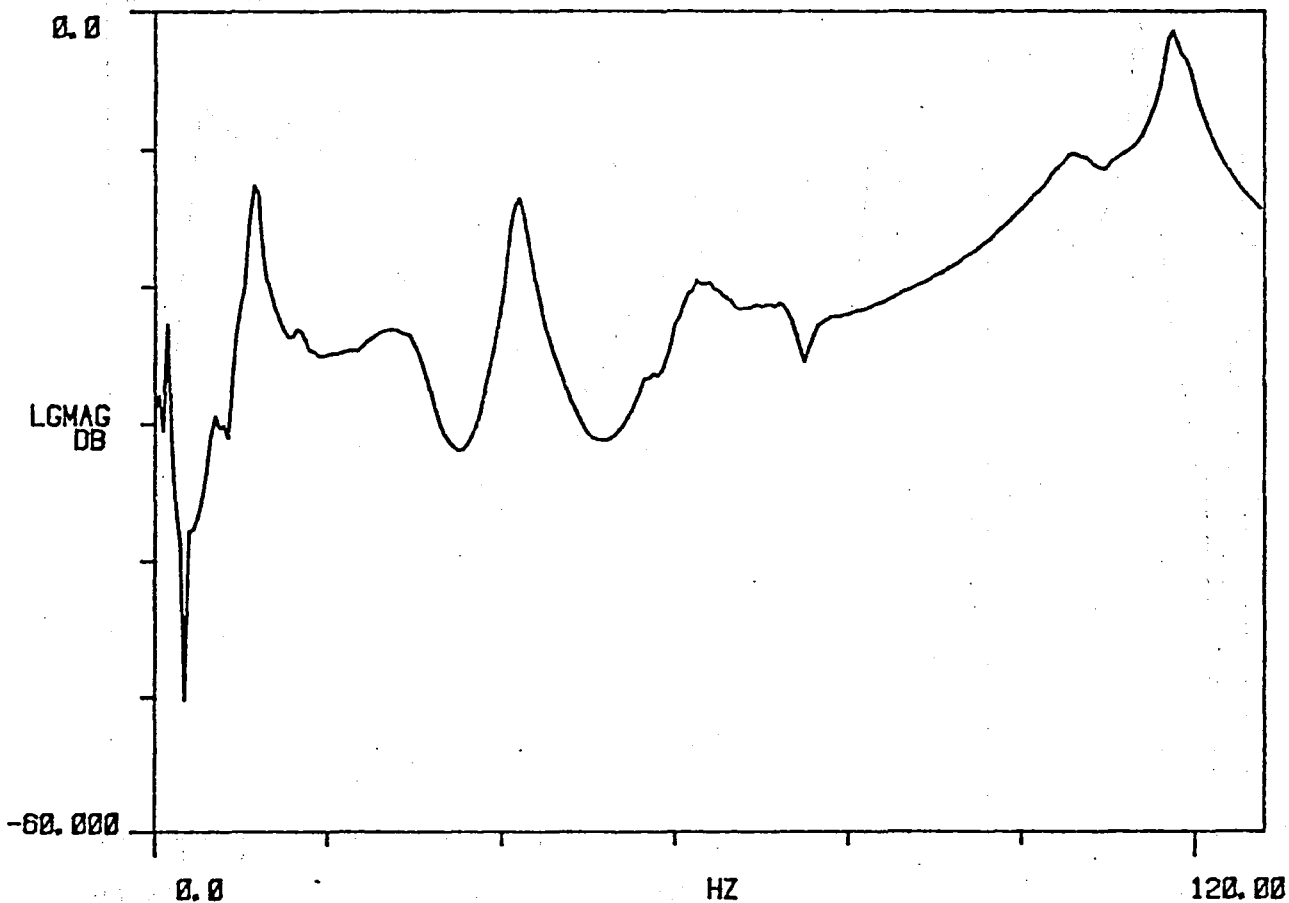
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	11.340	71.254	4.015	455.698	2.863
2	29.314	184.185	13.211	3.907	24.549
3	41.839	262.883	2.320	970.982	8.101
4	61.836	388.530	5.716	3.541	22.246
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.134	660.579	3.081	3.241	20.362
8	117.772	739.985	1.468	1.729	10.861

TRANS

R#1 21

#A1 325



(b) Accelerometer position two (near blade root).

Figure 15.- Concluded.

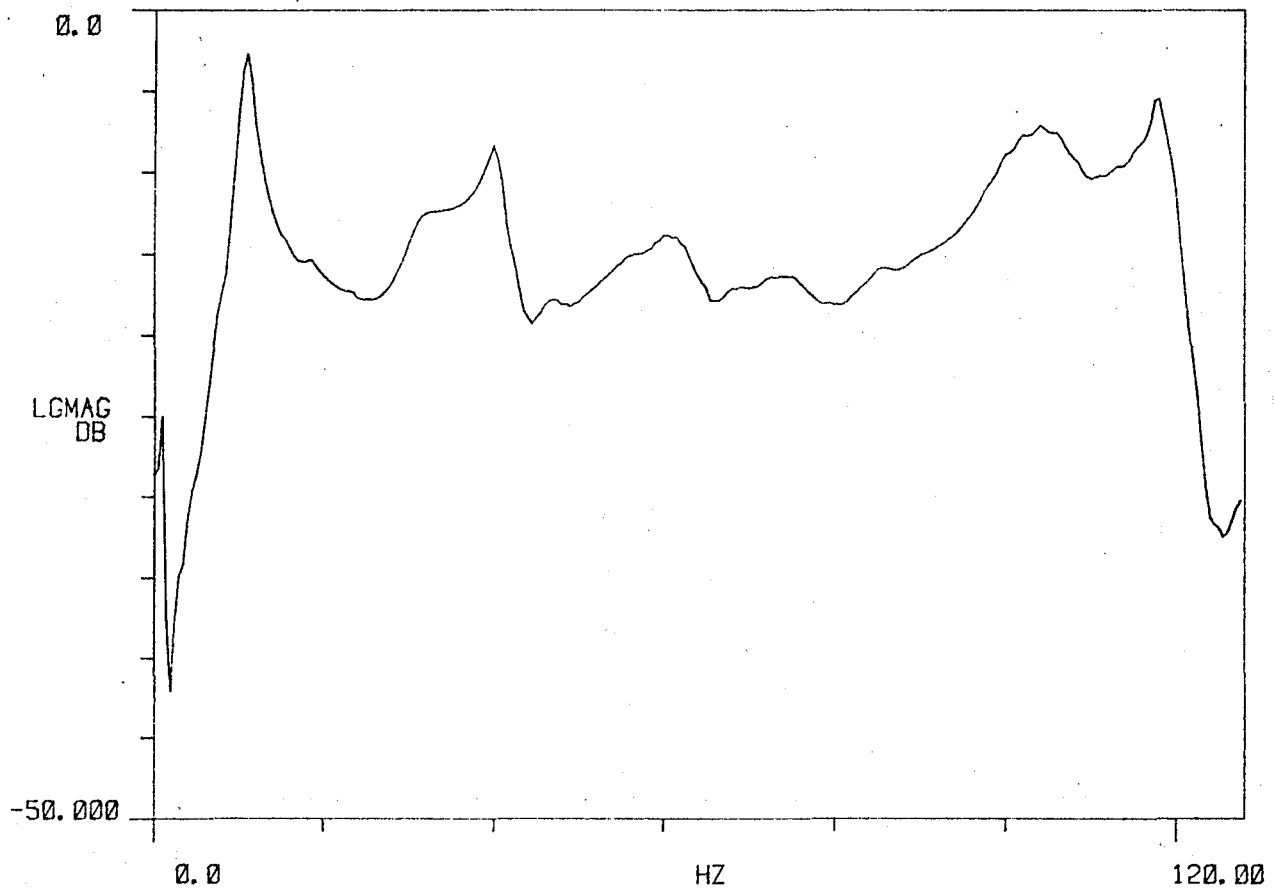
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.607	66.645	6.291	668.631	4.201
2	29.484	185.256	12.175	3.617	22.723
3	40.451	254.158	3.349	1.355	8.515
4	61.761	388.057	4.607	2.848	17.895
5	0.000	0.000	0.000	0.000	0.000
6	75.913	476.975	2.716	2.062	12.959
7	103.818	652.308	5.325	5.537	34.788
8	118.439	744.173	1.363	1.615	10.146

TRANS

R#: 17

#A: 325



(a) Accelerometer position one (near blade tip).

Figure 16.- Frequency and damping table and transfer function for blade 23, retention shaft not secured.

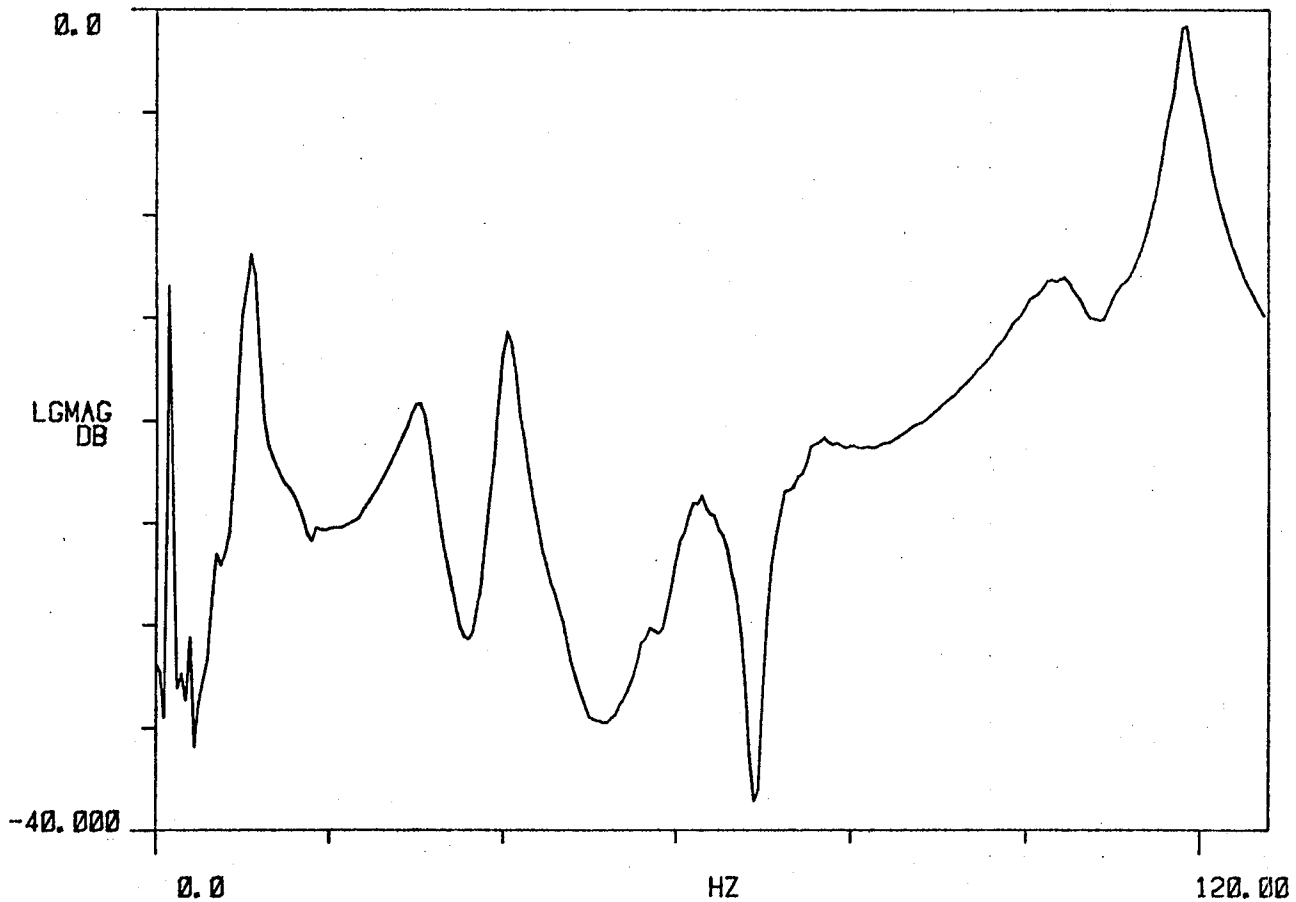
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.723	67.376	5.958	640.070	4.022
2	30.638	192.505	6.409	1.968	12.364
3	40.531	254.666	2.607	1.057	6.641
4	62.954	395.549	4.786	3.016	18.953
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	103.160	648.174	4.224	4.361	27.403
8	118.301	743.307	1.293	1.529	9.609

TRANS

R#: 19

#A: 325



(b) Accelerometer position two (near blade root).

Figure 16.- Concluded.



(a) Pressure face.

Figure 17.- Cracked blade number 30, FM 4.



(b) Inboard face.

Figure 17.- Concluded.

RESULTS

- 11/81, 10/81
- 3/5/82
- 3/31/82
- 10/82

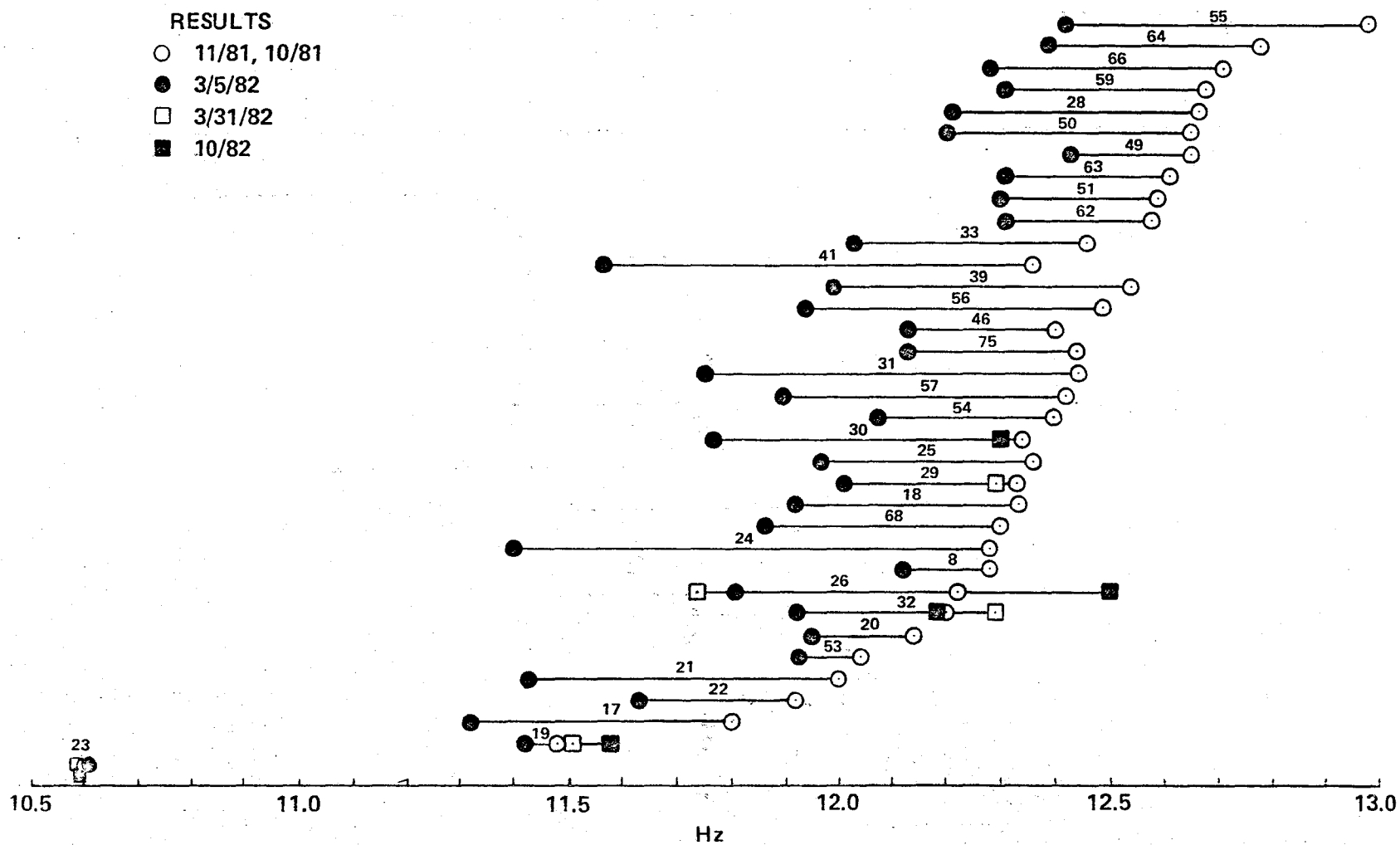


Figure 18.- Fundamental bending mode frequency changes, blades on FMs 4, 5, and 6.

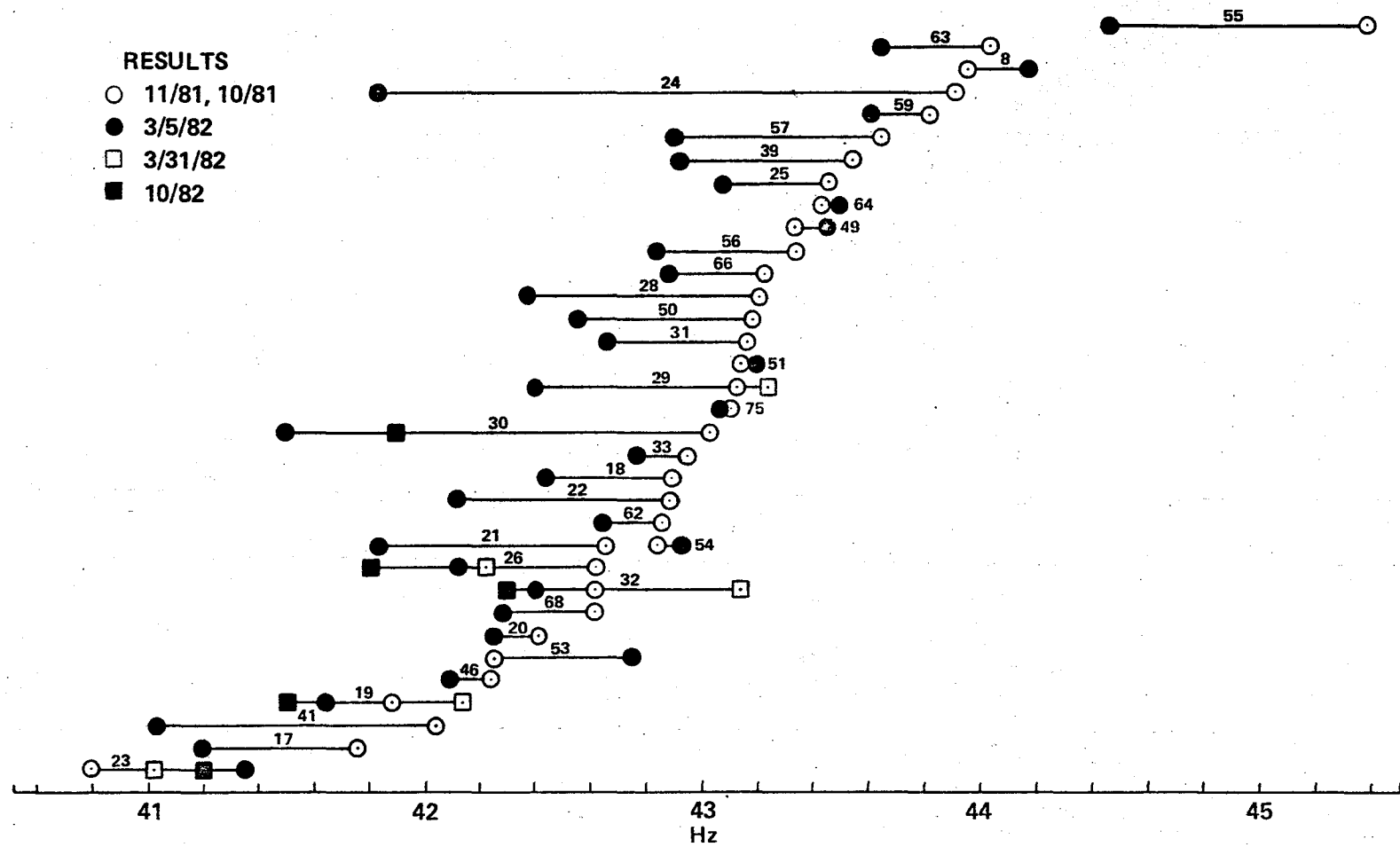


Figure 19.- Fundamental torsion mode frequency changes, blades on FMs 4, 5, and 6.

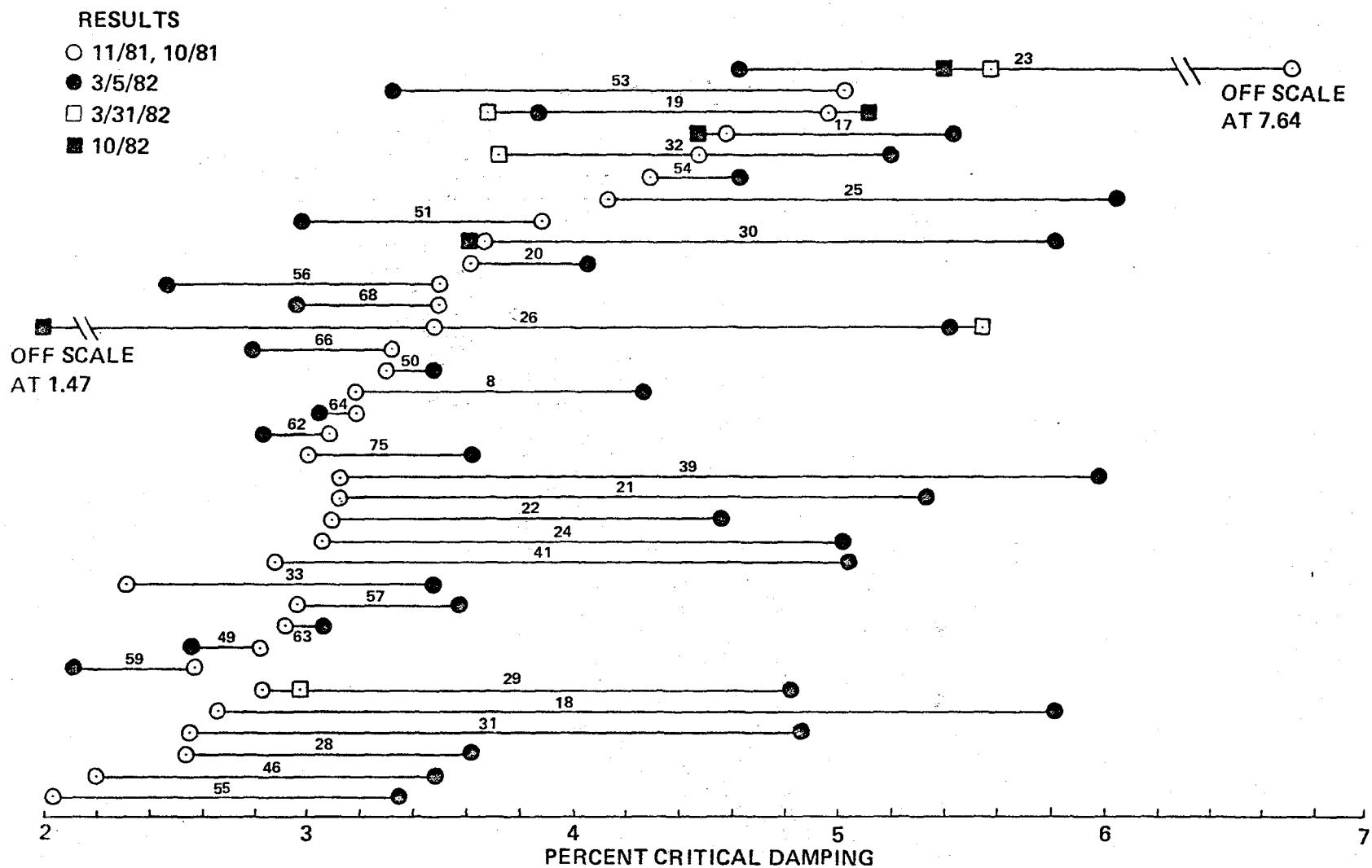


Figure 20.- Fundamental bending mode critical damping changes, blades on FMs 4, 5, and 6.

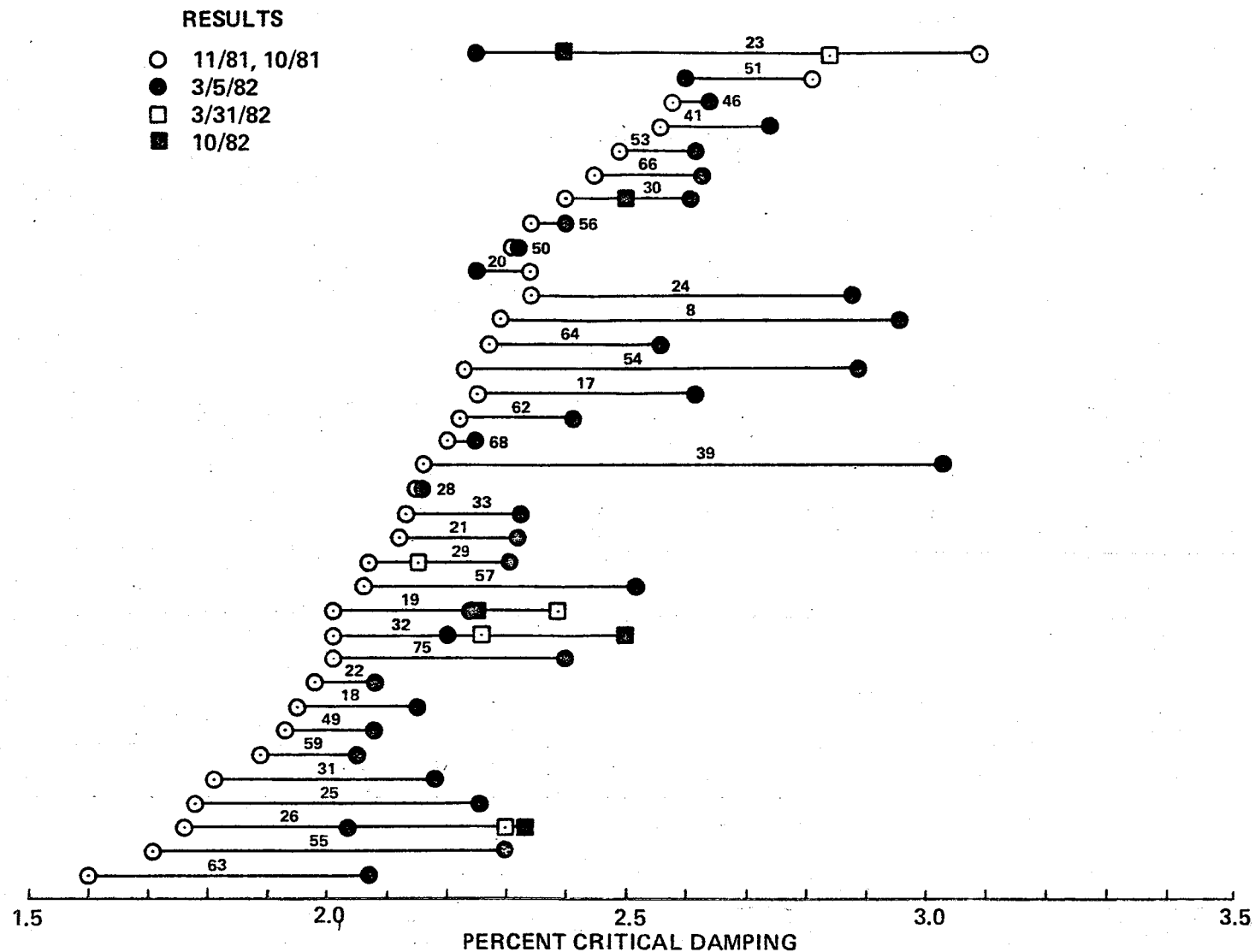


Figure 21.- Fundamental torsion mode critical damping changes, blades on FMs 4, 5, and 6.

APPENDIX A

SHAKE TEST MANUAL

INSTRUCTION MANUAL

FOR

FATIGUE DAMAGE ESTIMATION TESTING

OF

40- BY 80-/80- BY 120-FOOT WIND TUNNEL FAN BLADES

STEPHEN FISKE

WILLIAM WARMBRODT

JANUARY 1982

INTRODUCTION

This manual outlines the procedures for conducting the shake test on the 40- by 80-Foot Wind Tunnel fan blades. In particular, it is intended for the fatigue damage estimation testing (FDET) portion of the shake test program. Prior to performing this test, the user should thoroughly read these procedures, making sure to understand the purpose and significance of this test as well as how to operate the equipment properly. It is vitally important that each time this test is performed, it is done as prescribed in these procedures. Deviation from this test plan may very well defeat the purpose of this test; hence, any proposed changes to these procedures should be carefully thought over before being effected.

PURPOSE

The shake test program consists of two phases: fan blade acceptance testing (FanBAT) and FDET. As of January 1982, FanBAT was completed. The purpose of this portion of the program was to provide a quantitative estimate of each blade's structural integrity along with verification of proper installation. The fundamental bending and torsion modes along with six other modes were determined and recorded for each of the 90 blades. The results of FanBAT are summarized in appendix B. FanBAT provided the baseline data to which comparisons will be made to data obtained during FDET. The purpose of FDET is to track the modal characteristics of the blades (frequency and damping) in hopes that fatigue damage accumulation will be evidenced by changes in these properties.

TEST REQUIREMENTS

For most of the testing, two people should be able to satisfactorily handle the tasks involved in the test. However, some fan motors are harder to rotate than others and may require three people. Transporting the equipment to the second level nacelles will also require more than two people. This task is done using a winch to hoist up a lifting pan carrying the equipment. Extreme caution should be taken when performing this operation as you are dealing with very valuable and sensitive equipment.

The equipment required for the shake test is listed in table 1. This equipment should be either on the shake test cart or in the equipment box designated for the shake test. Additional equipment such as extension cords and lights are also needed for this test, although they are not kept with the shake test equipment.

PROCEDURES

The procedures that follow are broken up by tasks and encompass the entire shake test procedure from initial setup to data analysis on the analyzer.

I. Setting Fan Blade in Position

1. Set fan blade pitch angle to $\theta(0.75R) = 4.25^\circ$. This corresponds to $\theta(0.83R) = 0.0^\circ$. This setting should be independently checked by measuring the distance between the aft face of the VPM and the machined inner hub surface. The distance should be 30.60 in. The calibration rod with length 30.60 in. should be used for this check.
2. Disengage shaft brake.
3. Turn on lift pumps.
4. Wipe off the blade that is going to be rotated into position.
5. Turning the fan clockwise (viewed from north side of fan), rotate the first blade vertically. This is performed by aligning the shroud floor centerline mark with the black line on the upwind side of the blade surface (line locates blade pitch axis).
6. Leave lift pumps on until final alignment has been made. Lift pumps must be turned off prior to taking data since the pumps vibrate the nacelle and, indirectly, the fan blades. Due to slight nonconformities among the blades and shrouds it is sometimes necessary to locate the pitch axis of the blades slightly to one side of the shroud centerline mark. This unfortunately is not known until the blade bracket and the shaker are in place.

II. Installing Shaker

1. Remove the three 3/8 in. set screws from the shroud floor located approximately 6 in. and 28 in. from the blade tip.
2. Install the stand (fig. A1, 1.2; item 2) onto the shroud floor using three 3/8 by 3/4 in. bolts (1.1). Torque bolts tightly. The front two legs should not have to be adjusted; however, the height of the back leg may have to be adjusted to match the holes in the floor and to level the top of the stand. The top of the shaker stand should be level in both directions, but do not spend too much time trying to get it perfectly level. Final leveling is done on the shaker trunnion (1.3) assembly. Figure 1 shows the correct height of the shaker stand relative to the shroud floor.
3. Set shaker onto stand as shown in figure A2. Lightly tighten the lower four securing nuts (2.3). Caution — be sure the shaker is initially located toward the back of the stand (away from the blade face).
4. Screw adaptor bolt (A3.6), with washer (A3.2), into center of shaker armature table (A3.1). Place the 1/4 in. washer (A3.3) onto the adaptor and carefully screw on the force transducer (A3.7). Tighten with wrench.

III. Installing Blade Bracket

1. Screw double threaded flexure (A3.8) fully into pivot (A3.12) on blade bracket (A3.11).

2. Loosen the three allen screws (A3.9) in the bracket fully.
3. Slip the bracket onto the blade at station 200 in. This can be done with the aid of a mark on the airfoil leading edge at the 200-in. station located approximately $19 \frac{1}{8}$ in. below the 0.75R blue mark (1.5) located on the pressure side of the airfoil ($19 \frac{1}{8}$ in. from bottom of blue mark to top of bracket). A level should be used to set bracket horizontally on the initial blade. On succeeding blades, be sure the flexure is at the same height as the force transducer.
4. Tighten allen screws evenly once bracket is in place. The first screw nearest the pivot should receive approximately six full turns. This should correspond to a distance of about $\frac{5}{8}$ in. between the outer and inner bracket surfaces (fig. A4). The remaining two screws should receive approximately three full turns. Make sure each screw is snug against the inner bracket face.
5. Rotate the flexure and pivot to be parallel to the wind flow. Tighten pivot nut if necessary.
6. With the flexure screwed all the way into the pivot, carefully locate the shaker such that the force transducer is approximately $\frac{1}{4}$ in. from the near end of the flexure. Tighten the lower nuts, securing the shaker to the stand.
7. Very carefully locate the shaker to allow perfect alignment between force transducer and flexure by moving the shaker laterally and raising or lowering the shaker platform as necessary. The height of the shaker is adjusted using the nuts directly below the shaker platform (2.8). This platform should be level in both directions (horizontally) at all times. (After the shaker is positioned initially, the height need not be changed for the rest of the blades on that fan motor. To facilitate installation on succeeding blades, the bracket can then be moved slightly up or down to align the flexure with the force transducer.) The shaker should also be tilted forward or backward if necessary, so that it is parallel to the flexure. The flexure must very easily screw into the force transducer (fig. A3). Do not use tools to do this.
8. When you are certain that the position of the blade will allow you to align the flexure with the force transducer, shut off the lift pumps.
9. Upon alignment, tighten the nuts (2.7), securing the shaker platform. (Make sure the nuts directly below the platform are flush up against the platform before doing this.)
10. Screw flexure into force transducer approximately $\frac{3}{16}$ in. Using a wrench, secure the locking nuts (3.13) on the flexure against the force transducer and pivot (do not overtighten).

IV. Instrumentation Hookup

1. Screw an accelerometer mounting stud into the shaker armature table (long side into shaker). Tighten with screwdriver. Hand screw accelerometer (3.5; Serial No. AX71) onto exposed end of mounting stud. Tighten snugly with wrench (do not overtighten). Screw accelerometer cable (red) onto accelerometer. Connect other end of lead to the input connector on the back of the vibration monitor (5.6).

2. Install second accelerometer mounting stud (6.2) into response accelerometer (5.5; Serial No. AZ96) with screwdriver (short side into accelerometer). Place double-stick tape (6.1) onto the 1 in.² mounting block (6.6). Hand screw block onto accelerometer mounting stud. Tighten snugly by holding accelerometer with wrench (do not overtighten). See figure A6.

3. Connect instrumentation lead (blue) onto force transducer. Connect other end to back side of channel one charge amplifier (5.3).

4. Connect instrumentation lead (red) onto response accelerometer. Connect other end to back side of channel two charge amplifier (5.4).

5. Install BNC cable from output of charge amplifier number one to the channel one input on lower front panel of HP analyzer (5.1).

6. Install BNC cable from output of charge amplifier number two to the channel two input on lower front panel of HP analyzer (5.2). See figure 6.

V. Activation/Instrument Setup

1. Plug HP analyzer and power supply for charge amplifiers into rear power plug rack on shaker controller.

2. Plug shaker cable (5.5) into shaker and screw down retaining ring.

3. Plug shaker controller power cord into 110 V, 20-amp power source. Power can be taken from within the nose cone.

4. Turn on power to all equipment (allow at least 15 min warmup prior to starting measurement). Make sure gain on power amplifier is fully counterclockwise before turning power on.

5. The charge amplifiers should be put to the following settings:

<u>Amp No.</u>	<u>Sensitivity</u>	<u>Gain</u>	<u>Filter</u>
1	16 pc/g	100 mV/g	In
2	54.4 pc/g	1000 mV/g	In

6. The shaker controls should be put to the following settings:

Vibration monitor

Sensitivity 59 pc/g, switch on back set to 1x
Meter range 316/100
Meter units DISP MILS

Sweep generator

Hold
Lower limit 5 Hz
Upper limit 130 Hz
Sweep Up
Sweep rate 2.0 octaves/min

Vibration servo	
Speed	Auto, 3 dB/sec
Mode	Operate
Set level	Channel 1: Set for constant displacement (20 mils), switch on HI
	Channel 2: Fully clockwise
Gain	Fully clockwise; reset light should be off
Power amplifier	
Gain	3

For further details on shaker controller operation, see the operator's manuals.

VI. Data Acquisition

1. Attach response accelerometer to blade at location number one (12 in. from tip, 8 in. behind pitch axis). This location is marked by a black square on the blade surface. Tape (6.3) the cable to the blade about 3 in. from the mounting block. This is to prevent the cable from moving around and to keep the accelerometer from falling to the floor if it should come loose.

2. Ready HP analyzer for data collection. (See separate section for analyzer operation.)

3. Ready shaker controller.

i. Put sweep generator in HOLD mode.

ii. Shut LEVEL off (fully counterclockwise).

iii. Set frequency to lower limit and return switch to middle position.

Steps 4, 5, and 6 should be done together to initiate data acquisition.

4. Increase LEVEL to full on (clockwise).

5. Initiate SWEEP on sweep generator (toggle switch from HOLD to SWEEP).

6. Begin analyzer data collection.

At completion of data record,

7. Set sweep generator in HOLD mode.

8. Repeat steps 3ii and 3iii.

9. Carefully detach accelerometer from blade surface. Remove tape from mounting block. Apply new tape to block. Install the accelerometer at location number two (78 1/2 in. from tip, 12 1/4 in. from trailing edge). This location is also marked by a black square on the blade surface. Tape the cable to the blade as before.

10. Upon completion of data analysis, storing and preparation for acquisition of next data record, repeat steps 4-8.

11. After completion of second data acquisition remove blade bracket after removing flexure from force transducer.
12. Remove response accelerometer. Apply new tape to mounting block.
13. Activate lift pumps.
14. Rotate fan clockwise (looking from north) to bring the next blade into position. Care must be taken to avoid catching wires which run below blade tip from controller equipment to shaker.
15. Install bracket and align flexure as before, then shut off lift pumps. Upon completion of testing, remove all equipment carefully. Be sure the lift pumps and shaft brake are reset to original operational positions.

ANALYZER OPERATION

The following is a guide to readying and operating the HP 5423A analyzer for the shake test. It attempts to cover everything necessary to operate the analyzer specifically for this shake test under normal circumstances. For further instructions in operating the analyzer refer to the users guides.

I. Power Up

1. Make sure the interconnecting power cable (black) and the MIOB cable (gray strip) are properly attached to the analyzer.
2. Make sure the power toggle switch on the back of each of the three analyzer sections is turned on.
3. Plug the main power cord (gray) into a 110-V 60-Hz supply (power strip on back of shaker controller cabinet). You should now hear the fan in the middle section start up.
4. Flip the power switch on the front panel (middle section) from STANDBY to ON. This will supply power to the rest of the analyzer and the control tape within the analyzer will be read into the memory. This takes approximately 2 min after which a measurement state will appear on the display. You are now ready for initialization.

II. Initialization

To ready the analyzer for data collecting, two tables must be initialized within the analyzer. These are called the measurement STATE and the ID. The measurement state is set up by the user and tells the analyzer exactly what kind of measurement to take. For your convenience the "shake test" measurement state has been stored on tape #3 and can be recalled into the analyzer memory. This measurement state, once recalled into the memory, will stay in the memory as is until the power is turned off or it is changed intentionally.

The ID is a user edited table from which identifying information is taken and stored along with each set of data in the form of a label. (The label, for a specific set of data, can be viewed by pressing SHIFT LABEL when the data are displayed on the screen.) The ID contains the time and date the measurement was taken, the transducers used and other information specific to each measurement. The "shake test" ID has also been stored on tape #3 along with the measurement state. This table, however, is only partially filled out and must be edited to some extent prior to each measurement.

To set up the measurement state and ID using the previously stored information, perform the following steps:

1. Put tape #3 (or any other tape with the state and ID stored on it) into the analyzer.

2. Press 1, 2 RECALL. This recalls the information stored in Record 1, File 2: the "shake test" measurement state and ID. The measurement state will appear on the display (this does not need to be edited).

3. Press ID. This displays the ID.

4. Press EDIT. This enables the edit mode. An asterisk will appear next to the line to be edited and a bar appears next to the word or number to be edited.

5. Enter the time: HR, MIN, SEC EDIT.

6. Press ↓. This moves the edit bar to the next line.

7. Enter the date: MONTHDAY, YR EDIT. (Do not put a space between the month and day.)

8. Press ↓.

9. Enter the title in the form:

ALPHA FAN SHAKE X-YY MO/YR ALPHA EDIT

where X = FM # and YY = BLADE #.

10. Press ↓.

11. Enter: 1, 1 EDIT (if accelerometer is at Position #1)
1, 2 EDIT (if accelerometer is at Position #2)

12. Rewind the tape by pressing -1 RECALL. Take out tape #3 and insert the data tape to be used (make sure the record tab on the tape is in the proper position).

For convenience, store the measurement state and ID on each data tape to be used. To do this perform the following steps.

13. If the data tape is formatted go to Step 16. If the tape is not formatted continue with Step 14.

14. Press -98, -99, 1 or -98, -99, 2 depending on whether you want to select track 1 or track 2. Track 1 is automatically selected when a tape is inserted into the analyzer. Also, whenever a -1 SAVE operation is performed while on track 2, the analyzer will toggle back to track 1. The top line in the directory will reveal what track you are presently using.

15. Press -99, -99 SAVE (must be entered twice) to format the selected track.

16. Press STATE to display the measurement state.

17. Store the state and ID on the tape by pressing

[ALPHA] STATE - ID **[ALPHA]** SAVE

If you wish to set up the measurement state and ID from scratch, see the HP 5423A Users Guide for instructions. The "shake test" measurement state and ID are shown in figure A7.

III. Starting the Measurement

Once the measurement state and ID are set up, you are ready to take data. To take a measurement simply press START and the analyzer will begin collecting data. When the analyzer has reached 325 averages (shown in the upper right hand portion of the display during the measurement; it takes approximately 5 min for 325 averages) data collecting will stop and the READY light on the analyzer will be lit. A transfer function similar to that shown in figure A8 should be on the screen.

IV. Storing and Analyzing the Data

To store the transfer function shown on the display enter:

[ALPHA] XX TFY **[ALPHA]** SAVE

where XX is the blade number and Y is the accelerometer position number, either 1 or 2. This stores the data on the next available space on the tape and labels it XX TFY in the directory. The title stored in the directory is for convenience only. (If you had just pressed SAVE without entering the above title, there would have been no title in the directory.) Once the data are stored, you may proceed to analyze the different modes in the transfer function with respect to frequency and damping. The following steps outline the procedure.

First, the frequency and damping table in the analyzer must be configured properly. Initially, after startup of the analyzer, the F & D table contains data for two modes. These data must be cleared out and the table must be configured for the eight modes which you will be identifying.

1. Press SHIFT three times. This locks in the shift operation.
2. Press -1, -2 MODE #. This clears the existing two modes from the F & D table.
3. Press 1, 8 MODE #. This configures the table for eight modes.

4. Turn on the X CURSOR (verify that the transfer function is displayed before doing this).

5. Press 1 MODE #. This tells the analyzer that the peak you are about to analyze is mode number one.

6. Position the X cursor just to the left of the first peak in the transfer function.

7. Now press $\leftarrow \rightarrow$ to bring out the second x cursor and position this just to the right of the first peak. The idea is to try to center the peak between the two cursors as well as you can by using the position and width keys. The more data you get between the cursors the better, but you should avoid going so far that you are including data from an adjacent mode or are no longer on a well defined portion of the peak. Figure A9 shows examples of positioning the cursors around the peaks.

8. Once the cursors are positioned properly, press CURSOR VALUE F & D. The frequency and damping of this mode will be given at the bottom of the display and will also be stored in the F & D table automatically. If you wish to find the frequency and damping without storing the values into the table, press O F & D.

9. Now, press 2 MODE #. This tells the analyzer the next mode you will identify will be mode number two.

10. Bracket the second mode with the x cursors as you did for the first mode. Then once again press CURSOR VALUE F & D.

11. Repeat this procedure for the remaining six modes of interest. Given below are the approximate locations of the eight modes.

<u>Mode #</u>	<u>Frequency (Hz)</u>
1	12.5
2	34
3	43
4	64
5	71
6	78
7	108
8	120

If any of the modes cannot be identified in the transfer function or the peak is too small for determining its frequency and damping, zero out that entry in the F & D table. To do this, press -x, -x MODE #, where x is the number of the mode you wish to zero out. At times, it will appear as though the fourth and fifth modes have merged forming one larger mode. Simply store the frequency and damping information of this mode into either slot in the F & D table and zero out the other. It is not important that each blade have exactly the same modes as the next blade, rather it is the repeatability of each mode on a given blade that counts.

When you have completed all eight modes, then:

12. Press X CURSOR to get rid of the cursor on the display.

13. Press F & D to display the F & D table. Successive presses of the ↑ or ↓ keys will scroll the F & D table either up or down. Figure 8 shows an example of an F & D table.

14. When you are satisfied that the data were entered into the table properly, store the table by pressing: **[ALPHA] XX FDY [ALPHA] SAVE**, where again XX is the blade number and Y is the accelerometer position number.

You are now through with the analysis for this measurement and can proceed to set up the analyzer for the next data acquisition.

15. Press the SHIFT key twice to get it out of shift (verify that the SHIFT light on the status panel is out).

16. Press ID to display the measurement ID.

17. Edit the point number so that it corresponds to the accelerometer position during the next measurement. If you are changing blades, edit the title also (see Steps 9 and 11 of Section II). You are now set to start the next measurement.

V. Power Off

When you are finished with the analyzer for the day, first rewind the tape by pressing -1 RECALL. Then, to save the current directory in memory onto the tape, press -1 SAVE. The message "OK TO REMOVE TAPE" should appear in the display echo field. Remove the tape, switch the analyzer over to STANDBY and turn the power off. NOTE: When put into STANDBY mode, the analyzer will retain everything that was in its memory previously, unless the power is shut off.

PHOTOGRAPHIC DOCUMENTATION

Photographs of the complete shake test hardware installation are shown in figures A10-A13. These pictures provide further clarification of the final installation process shown in figures A1-A6.

DOCUMENTATION OF RESULTS

Documentation in this shake test program is vitally important as this test is to be carried out periodically throughout the useful life of the fan blades. Data obtained in earlier shake tests are essential for comparison with current records. For this reason, a system of redundancy is warranted. All the data taken and analyzed is recorded on two separate tape cartridges and also plotted out on a hard copy. This hard copy is kept in a binder separated by FM number and measurement date. The tapes are labeled with FM number, date, and tape log number. A log is kept of these tapes for easy reference. It is essential that this documentation program be kept current.

Shake test data for slightly more than one complete fan motor (15 blades) will fit on each track of a tape. It is convenient, therefore, to record data for two motors on each tape (one of each track — keep them separate!). Once filled, the tape

can be duplicated following the procedures outlined in the HP 5423A Users Guide (vol. 2). Prior experience shows that although the Scotch DC 100A tapes available in Ames stock will work in the 5423A analyzer, some problems will arise now and then. It is therefore wise to use the Hewlett-Packard data tapes for the original data and the Scotch tapes for the duplicate copies.

Data plotting for the hard copy is done on the HP 9872B using the 5423A to control it and read the data tape. To aid in plotting the data, a short auto-sequence program has been written and stored on tape #3. Instructions for using this program to plot the data are given in the next section. To set up the analyzer and digital plotter, perform the following steps:

1. Connect the interface bus from the digital plotter to the analyzer.
2. Set the red tab on the back of the analyzer (middle section) from ADDRESSABLE ONLY to SYSTEM CONTROL.
3. Verify that the address switch on the digital plotter is set at

	A1	A2	A3	A4	A5
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Power up the analyzer and the digital plotter. After the control tape has been read into the memory press 0 RESET to initialize the HP-IB.
5. Place a black plotter pen into space #4 on the plotter.

You are now ready to go on to the next section for plotting instructions. For more information on using the digital plotter with the 5423A, refer to the HP 5423A Users Guide.

AUTO-SEQUENCE PROGRAM

This program was designed to help speed up the task of plotting the shake test data. Although the user can utilize this program with very little knowledge of the HP 5423A analyzer, it is highly recommended that a general background in operating the analyzer be acquired beforehand. Familiarization with the basic functions and operating procedures of the analyzer will help in understanding the program. It will also come in handy if something should go wrong while running the program.

There are two conditions that must be met for the program to work efficiently:

- (1) The F & D table must initially contain data for exactly two modes (modes 1 and 2). This is the state of the F & D table after turning the analyzer on; so long as nothing was done to the F & D table subsequent to this, the table should be configured properly.
- (2) The program assumes that the shake test data has been stored on the tape in an orderly fashion. The transfer function data must be followed by the F & D data, then the next transfer function and so on. If this is not the case, it might be wise to plot the data without utilizing the auto-sequence program.

The auto-sequence program has been recorded on tape #3. It is suggested that it be recorded at the beginning of every other data tape for convenience (label it "AUTO-SEQ" when saving).

To call the auto sequence program:

1. Insert tape #3 into the analyzer.
2. Press ALPHA AUTO-SEQ ALPHA RECALL

To run the program:

1. Press -1 RECALL to rewind the tape. Take out tape #3 and insert data tape.
2. Press 100 START. This starts the program at Label 100.

To stop the program:

1. Press RESET

For instructions on other aspects of the auto-sequence program such as editing, refer to the HP 5423A Users Guide. The following shows the auto-sequence program followed by a step-by-step explanation of the program.

Auto-sequence program

1. 100 LABEL "INITIALIZATION FOR PLOTTING ROUTINE"
2. 2,1100,1100 PLOT
3. 3,7000,5500 PLOT
4. -1,-2 MODE#
5. 1,8 MODE#
6. -1,,"RECALL FIRST SET OF DATA" PRINT
7. 9 PAUSE/CONT
8. 110 LABEL "PLOTTING ROUTINE"
9. -1,,"PUT PAPER ON PLOTTER AND PICK UP PEN #4" PRINT
10. 9 PAUSE/CONT
11. -1,,' PRINT
12. LABEL "INPUT ID INFORMATION FOR PLOT"
13. 9 PAUSE/CONT
14. TRACE
15. PLOT
16. -1,,' PRINT
17. RECALL
18. 7 PRINT
19. -1,-8 MODE#
20. RECALL
21. 110 START
22. STOP

Step-by-Step Explanation of Auto-Sequence Program

Line # Comments

- | | |
|---|------------------------------------------------------------------------------------------------------------|
| 1 | Start of plotting program. Steps 2-6 are initialization procedures for the plotting routine which follows. |
| 2 | Sets lower left limit of data plot. |
| 3 | Sets upper right limit of data plot. |

Line #	Comments
4	Deletes first two modes in F & D table.
5	Configures F & D table for eight modes.
6	Instruction to user; user recalls and displays first transfer function.
7	Pauses program; user must push 9 PAUSE/CONT to continue.
8	Start of plotting routine.
9	Instruction to user.
10	Pauses program; user must push 9 PAUSE/CONT to continue.
11	Clears last user instruction from echo command field.
12	Displays measurement label; user inputs ID information for data plot in the following form: <div style="margin-left: 40px;">-1,, ALPHA FM # BLADE #, ACC.POS.#, MO/YR ALPHA PRINT</div>
13	Pauses program; user must push 9 PAUSE/CONT to continue.
14	Displays transfer function.
15	Signals plotter to plot.
16	Clears ID information from echo command field.
17	Recalls next record on tape; F & D table.
18	Prints entire F & D table.
19	Clears F & D table for next set of data. (If there are only seven modes identified in a particular F & D table the auto-sequence program will stop when it reaches Step 19. To continue press -1,-7 MODE# to clear the F & D table, press RECALL to recall the next transfer function, then start the program again by pressing 110 START.)
20	Recalls next record on tape; next transfer function.
21	Returns program back to label 110.
22	Stop.

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Scotch DC100A Data Tapes: Ames Store Stock No. 7045-01-060-6452
Quantity of Issue: Box (5 tapes per box)

HP Data Cartridge: Part No. 98200A (5 tapes per box); obtain at HP Computer Support Division

HP Digital Plotter Pens (Black): Part No. 5060-6787 (5 pens per package); obtain at HP Corporate Parts Center

TABLE 1.- SHAKE TEST EQUIPMENT

Electronic equipment				
Item		Manufacturer	Model No.	Serial No.
1. Analyzer		Hewlett-Packard	5423A	2050A00410
2. Vibration monitor		Ling Electronics	VM-100A	137C
3. Sweep generator		Ling Electronics	CO-100A	132C
4. Vibration servo		Ling Electronics	VS-100A	124C
5. Amplifier		Ling Electronics	PA 1594B	--
6. Shaker		Ling Electronics	420-1	139
7. Charge amplifier		Endevco	2721BM1	BR69
8. Charge amplifier		Endevco	2721BM1	BR68
9. Power supply		Endevco	4221A	AD65
10. Accelerometer		Endevco	7701-50	AZ96
11. Accelerometer		Endevco	7701-50	AX71
12. Force transducer		PCB Piezotronics	231A	343
Other equipment (quantity)		Nuts and bolts		
13. Micro-dot cables (3)		1. 3/8" × 3/4" bolts (3)		
14. BNC cables (2)		2. 3/8" × 3 1/2" threaded rods (4)		
15. Blade bracket		3. 3/8" unistrut nuts (4)		
16. Tape measure		4. 3/8"-16 nuts (16)		
17. Ruler (12" see-thru)		5. 3/8" washers (7)		
18. 1" square template		6. 3/8" body washers (8)		
19. Black marker		7. 2" square washers (8)		
20. Scissors		8. 1/4"-28 nuts (2)		
21. 5423A Users Handbook		9. 1/4" washer		
22. Flexures: 1/16" neck (3)		10. 3/16" washer		
23. Tape: duct, yellow plastic, double stick		11. 3/16" lock washer		
24. Shaker stand with feet		12. Adaptor (for force transducer)		
25. Accelerometer mounting blocks (2)				
Tools		Miscellaneous (not required for shake test)		
1. 6" crescent wrench		1. Flexures: 3/32" neck, 1/8" neck		
2. 1/2", 9/16" open end wrench		2. Impact hammer with nylon tip		
3. 3/4", 7/8" open end wrench		3. Various nuts, bolts, etc. (2 bags)		
4. 3/8", 7/16" ratchet wrench		4. Hammer — ball		
5. 1/2", 9/16" ratchet wrench		5. Hammer — plastic tip		
6. 5/16" allen wrench				
7. 1/8" allen wrench				
8. 1/8" allen ratchet attachment				
9. 1/16" bristrol with red handle				
10. Combination level				
11. Jewelers screwdriver				

TABLE 2.- TAPE LOG

Tape #	Date filled	Contents	Original	Copy
1	11/81	FM5, FM6	X	
2	11/81	FM5, FM6		X
3	1/82	FM4, FM1, measurement state and ID, auto-sequence plotting program	X	
4	3/82	FM4, FM1, "STATE-ID," "AUTO-SEQ"		X
5	1/82	FM2, FM3, STATE-ID, AUTO-SEQ	X	
6	3/82	FM2 (unable to read FM3 data off of tape 5)		X
7	3/82	FM4	X	

EXAMPLE -- NOT FOR DOCUMENTATION PURPOSES

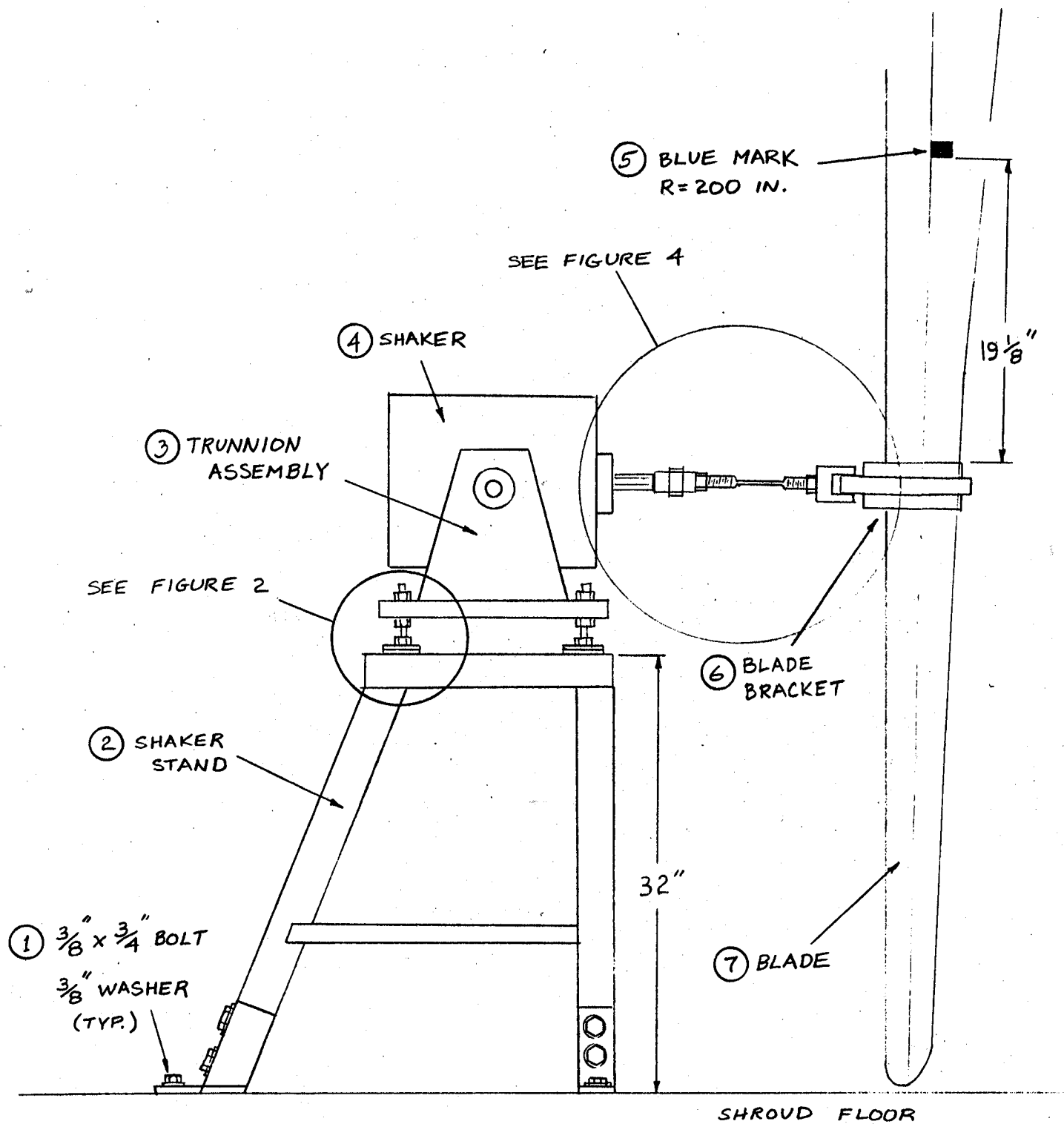


Figure A1.- Shaker-bracket assembly.

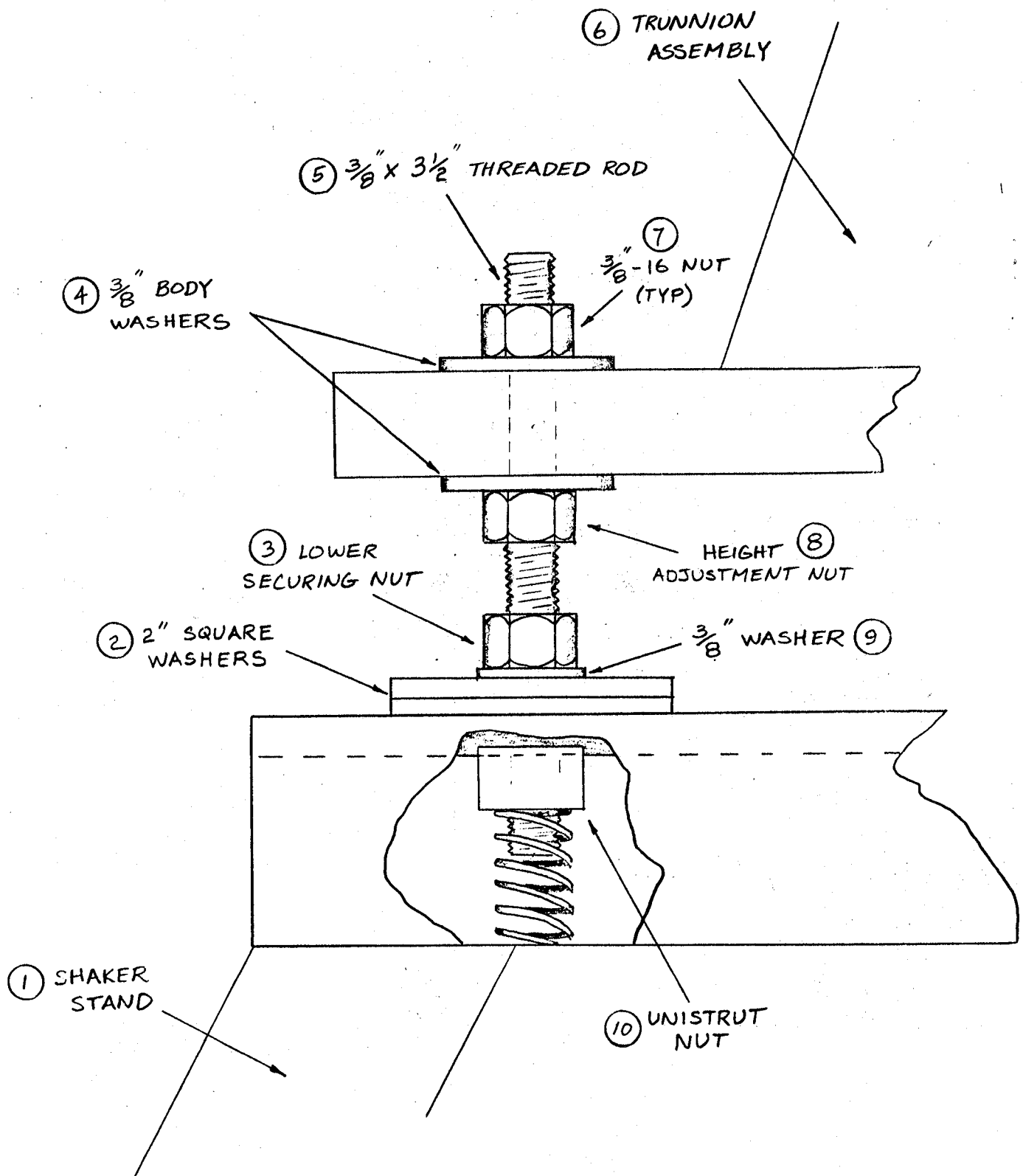


Figure A2.- Shaker mounting arrangement.

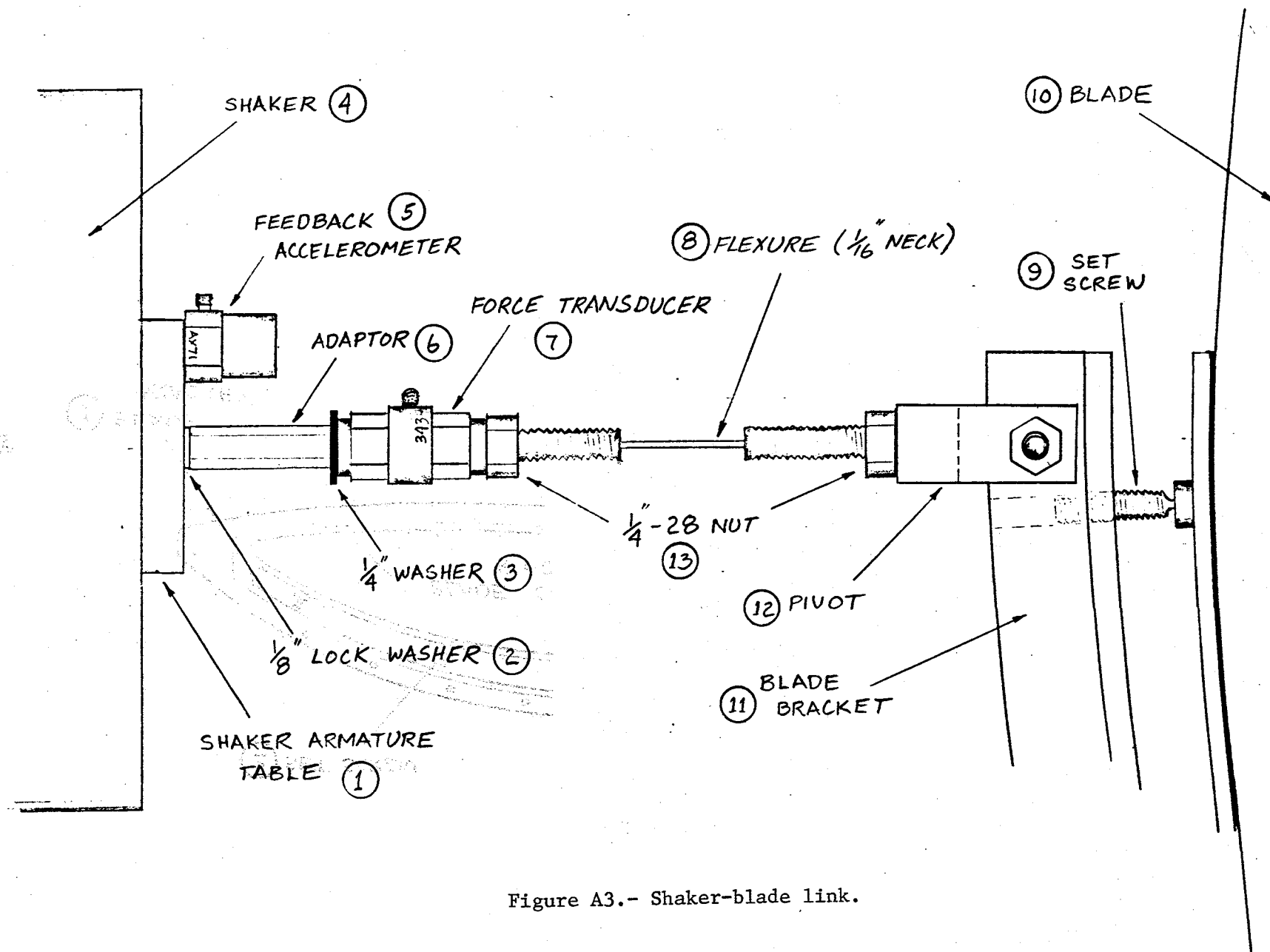


Figure A3.- Shaker-blade link.

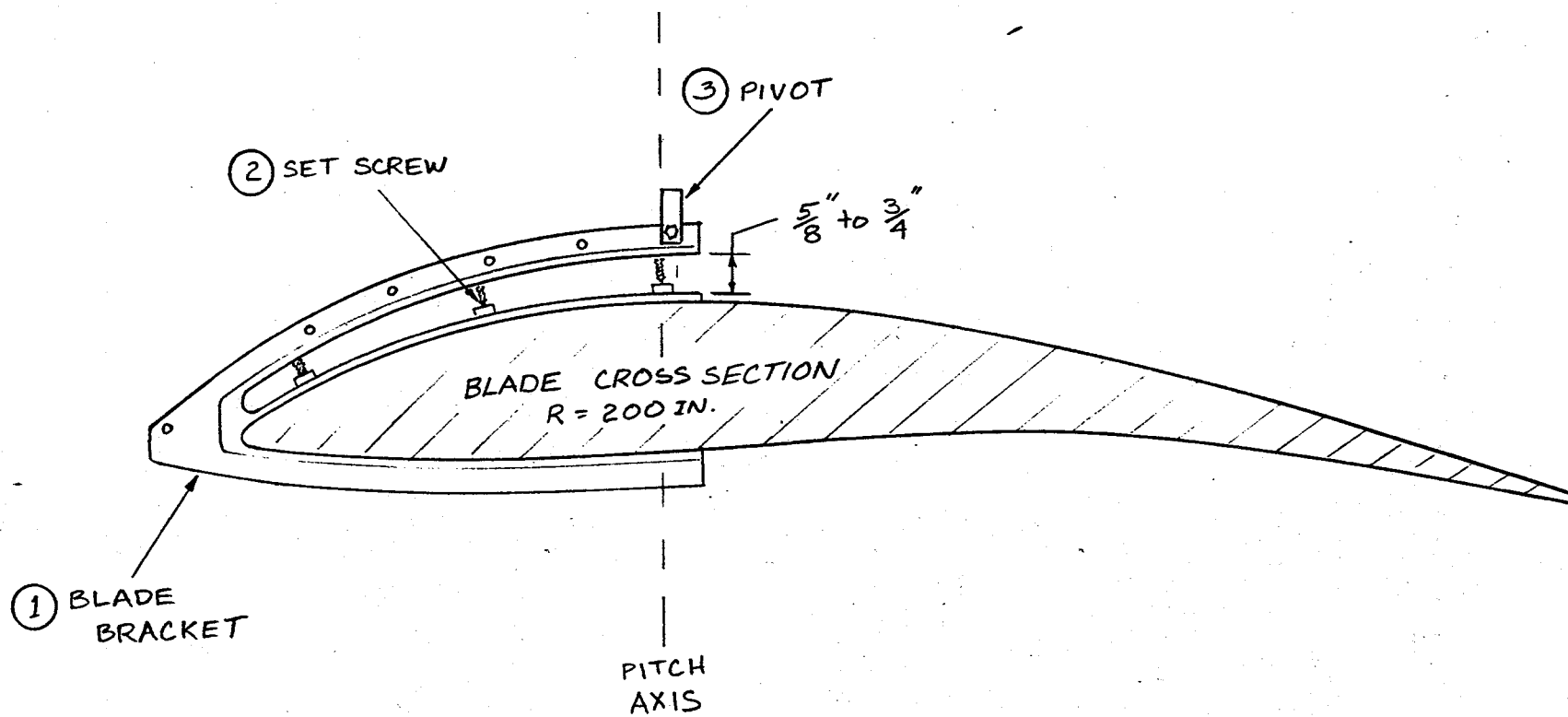


Figure A4.- Blade bracket.

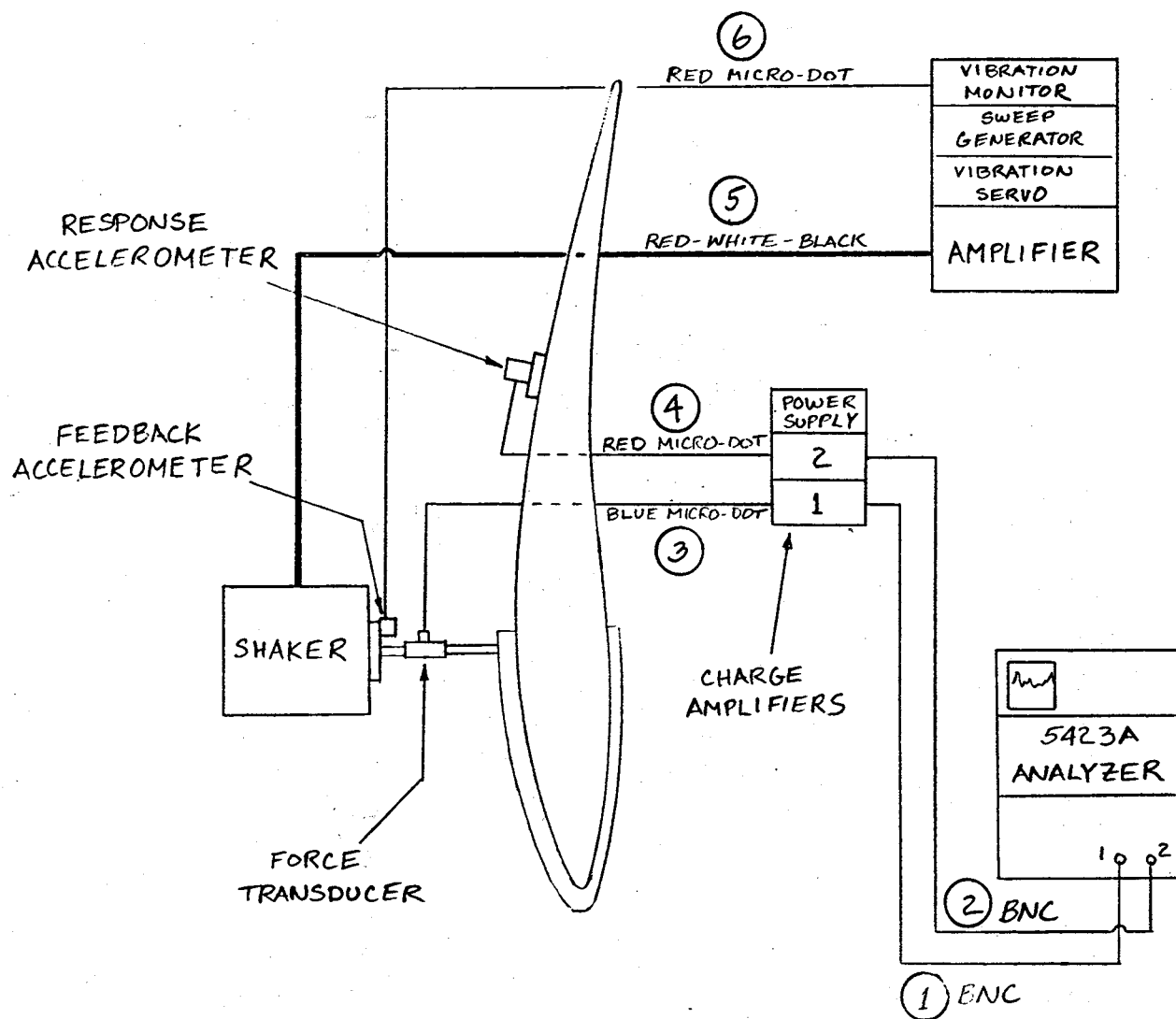


Figure A5.- Instrumentation schematic.

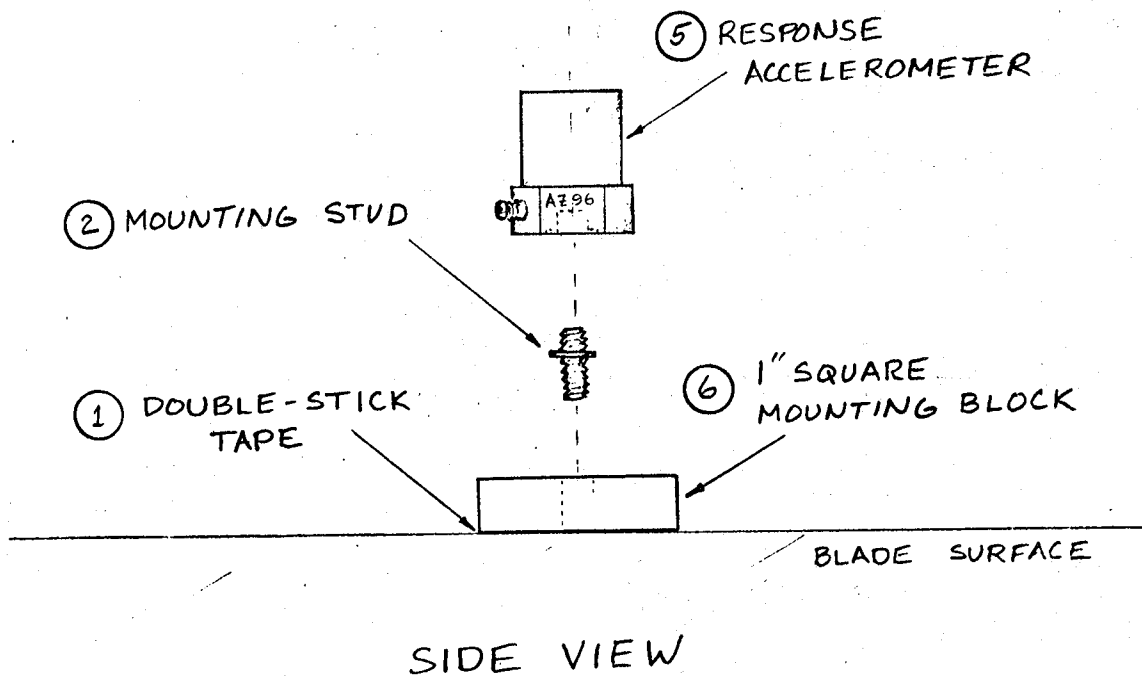
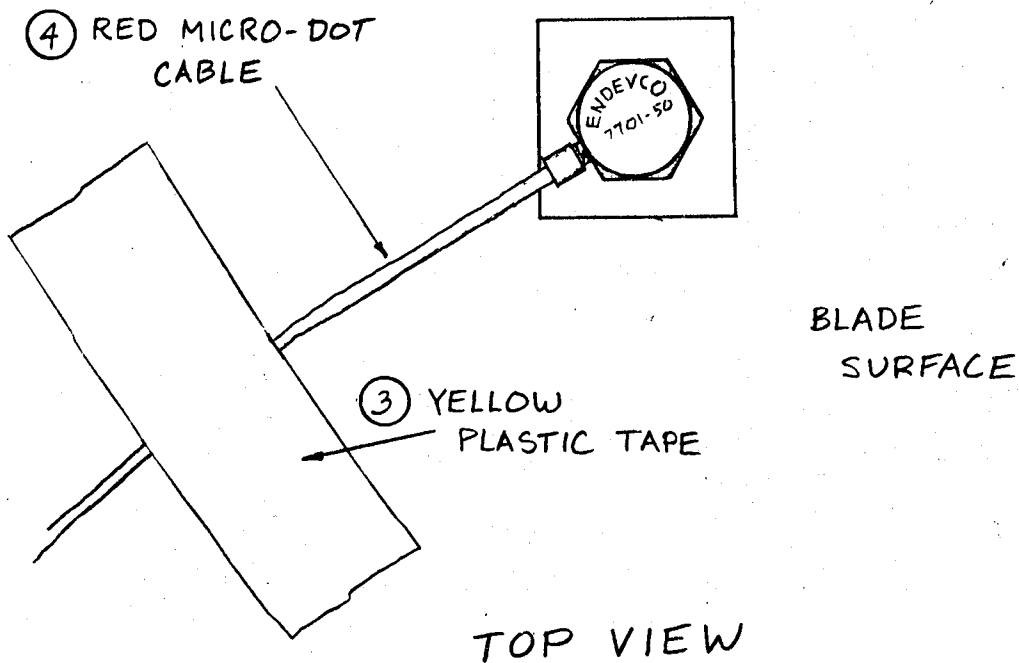


Figure A6.- Accelerometer mounting.

MEASUREMENT STATE

MEASUREMENT : TRANSFER FUNCTION
AVERAGE : 325 , STABLE
SIGNAL : RANDOM
TRIGGER : FREE RUN , CHNL 1

CENT FREQ : 0.0 HZ ΔF : 500.000 mHZ
BANDWIDTH : 120.000 HZ
TIME LENGTH : 2.00000 S ΔT : 1.95312 mS

CHAN #	RANGE	AC/DC	DELAY	CAL (EU/V)
* 1	10 V	AC	0.0 S	1.00000
* 2	2.5 V	AC	0.0 S	1.00000

MEASUREMENT ID

TIME 00:00:00
DAY-YEAR 0-0
'FAN SHAKE 0-00 00/00'

	CHAN #1	CHAN #2
PT :	1	1
ΔPT :	0	0
DIR :	1	1
DIR SEQ :	1 , ,	1 , ,

TRANSDUCERS

MOD. #:	' 231A '	'770150'
SER. #:	343	96
UNITS:	LB'S	G'S (E)

Figure A7.- "Shake test" measurement state and ID.

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.642	79.435	2.819	356.481	2.240
2	33.755	212.087	5.741	1.941	12.196
3	43.338	272.301	1.915	830.264	5.217
4	64.382	404.524	3.927	2.530	15.896
5	72.082	452.904	3.768	2.718	17.078
6	79.594	500.105	2.325	1.851	11.630
7	108.914	684.328	2.022	2.203	13.840
8	119.815	752.820	1.247	1.494	9.388

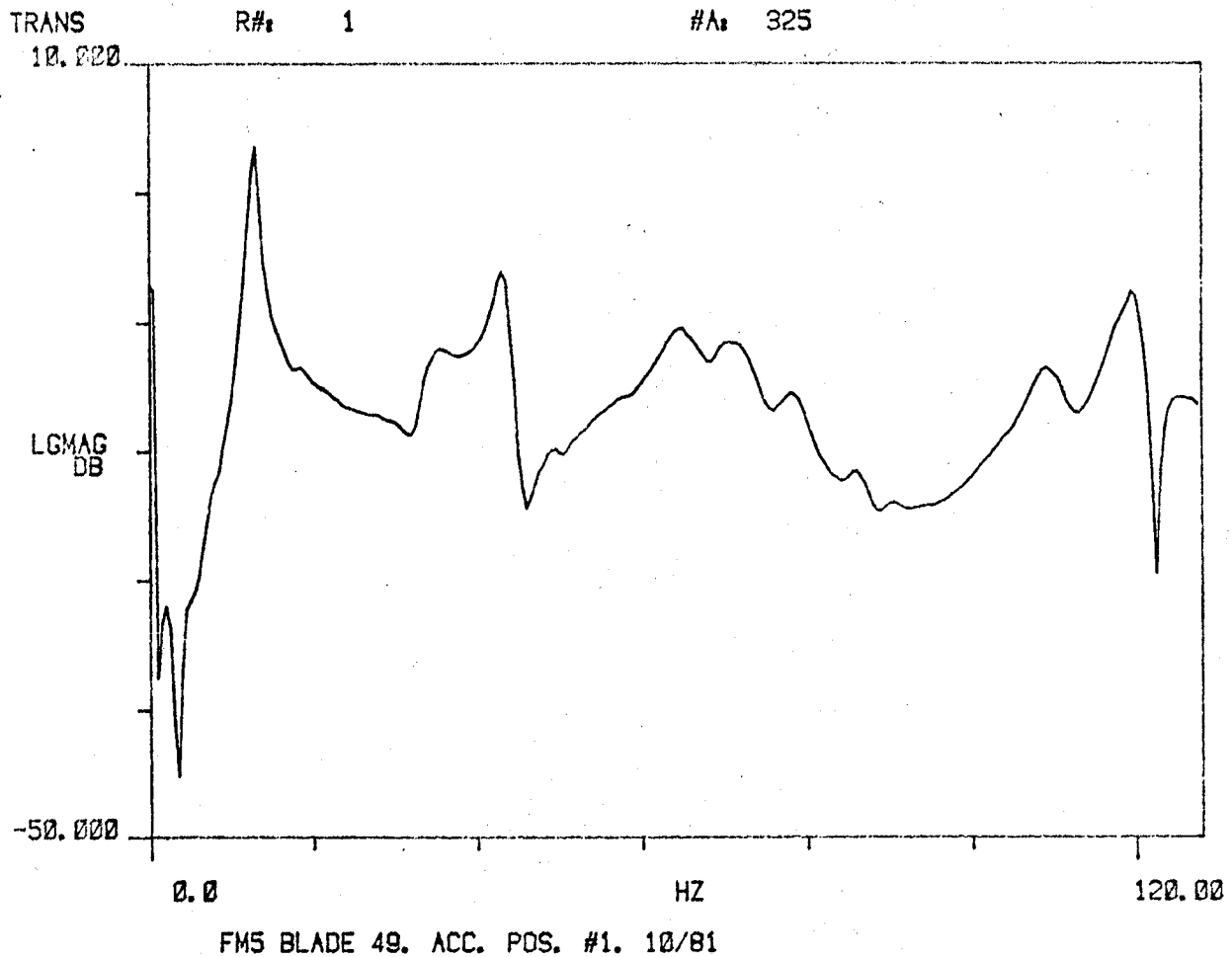


Figure A8.- Sample data.

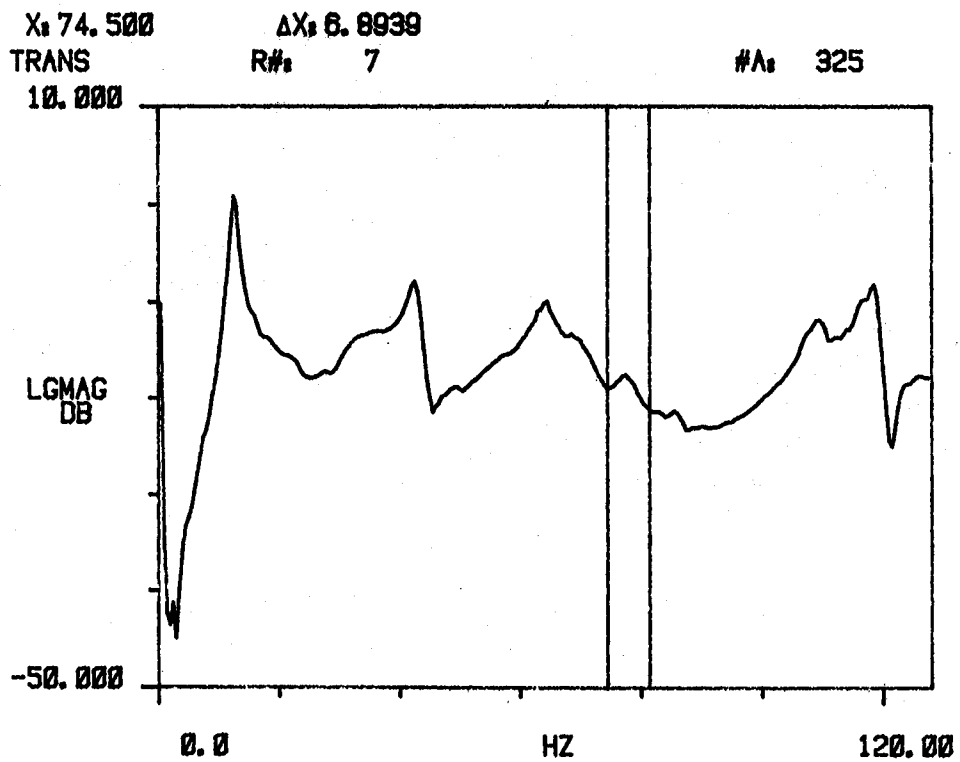
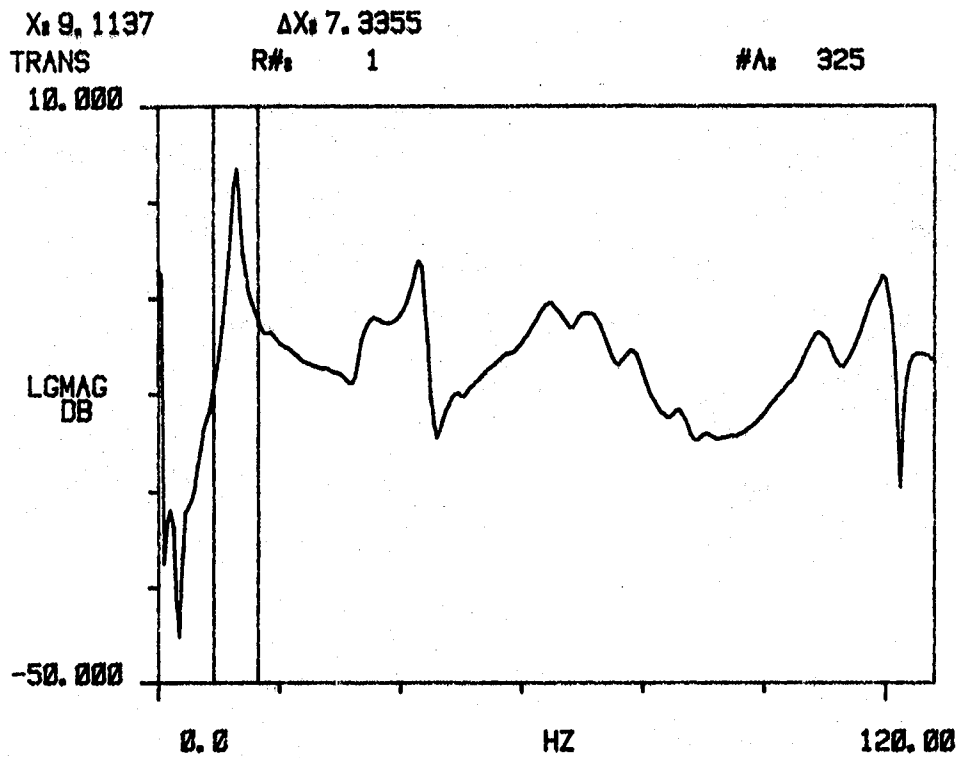


Figure A9.- Positioning cursors.

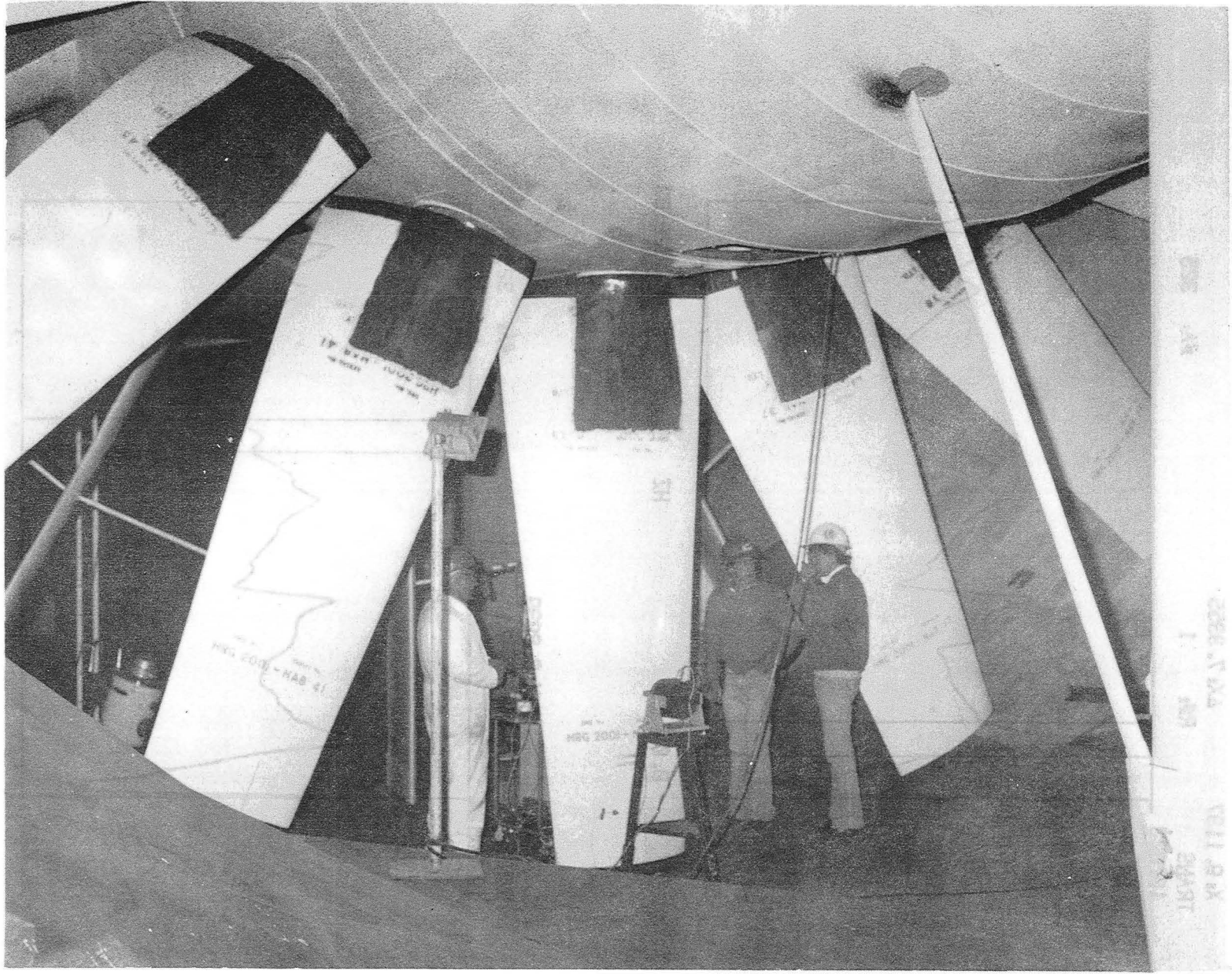


Figure A10.- Shake test quarters.

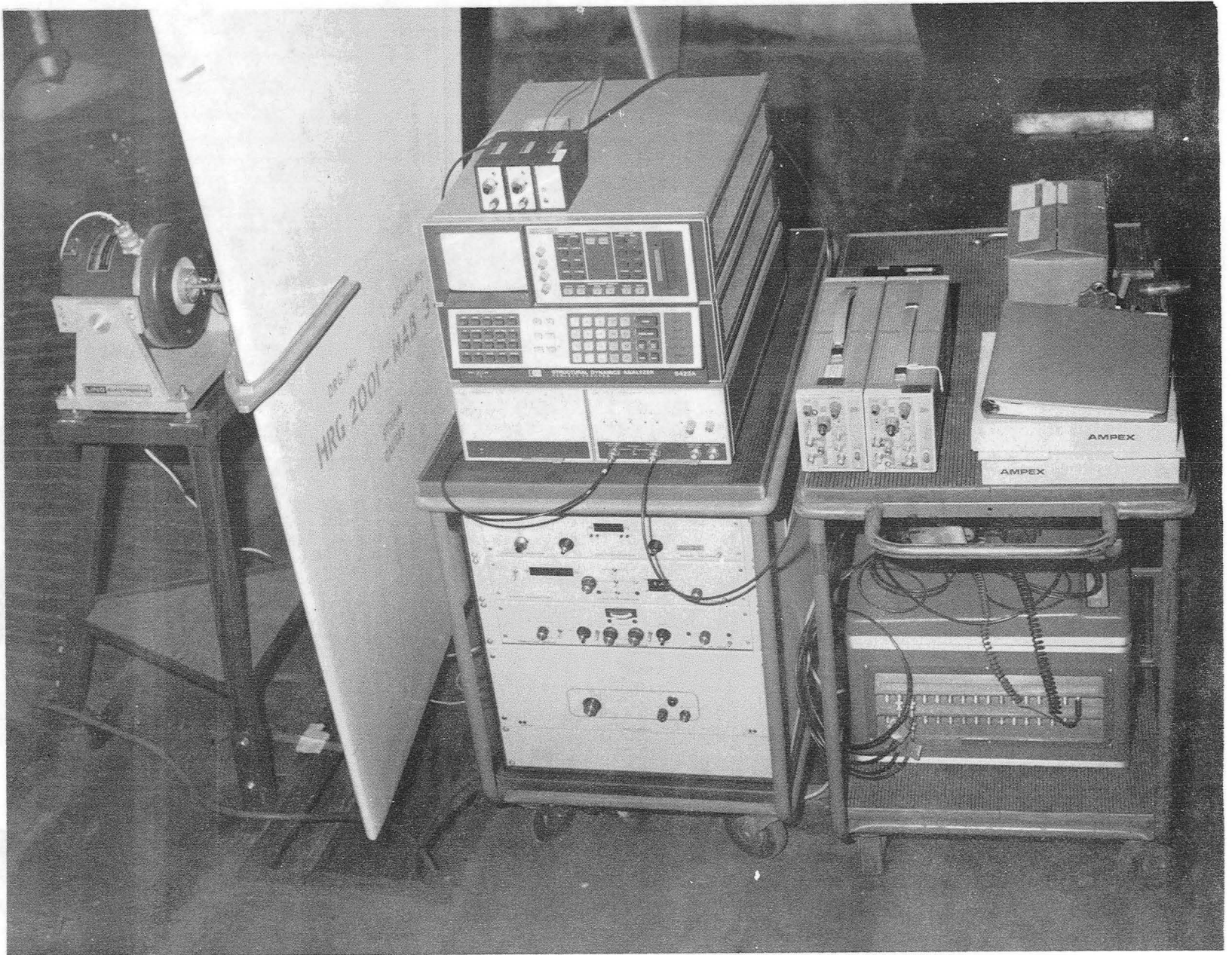


Figure All.- Shake test: equipment setup.

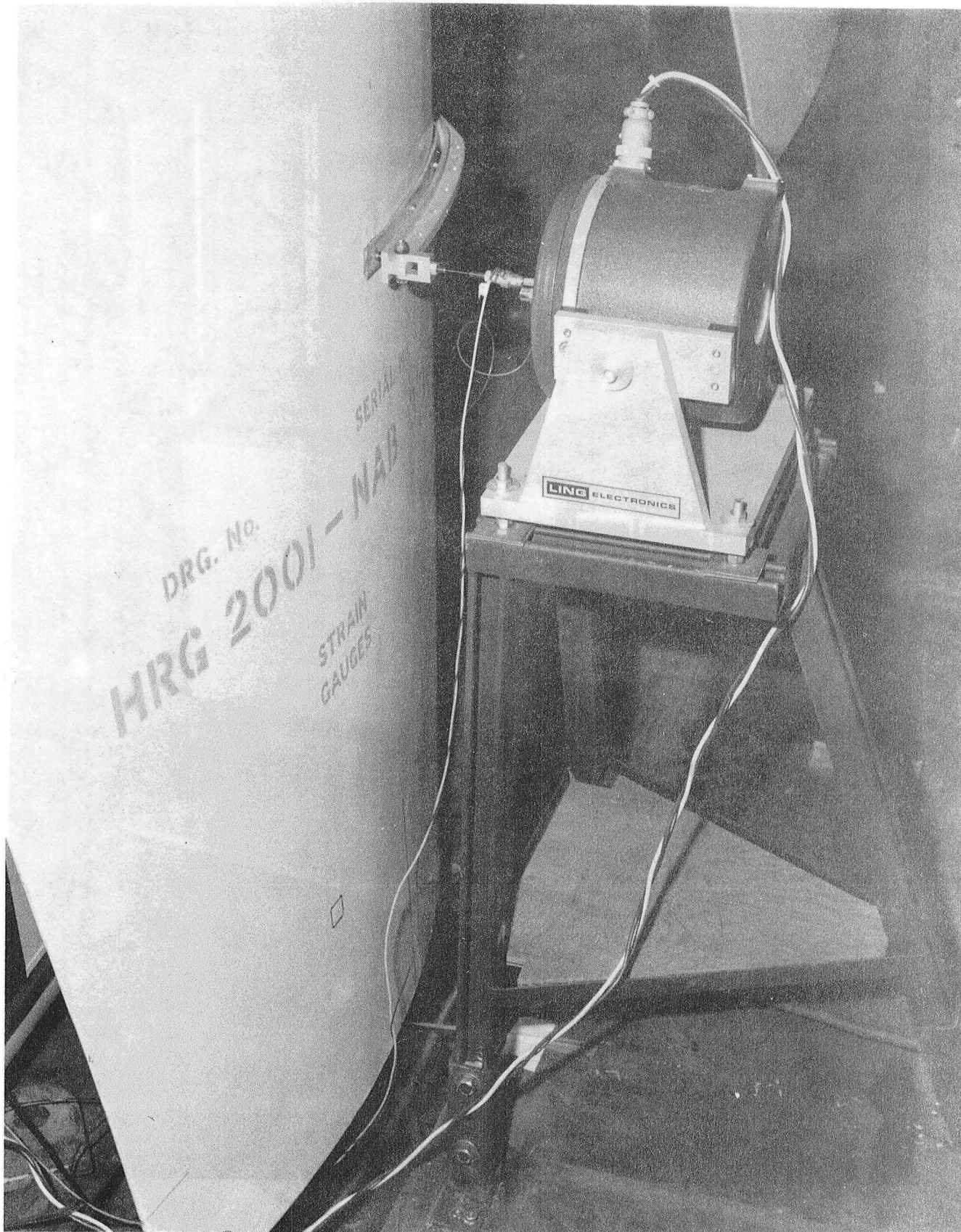


Figure A12.- Shaker and stand.

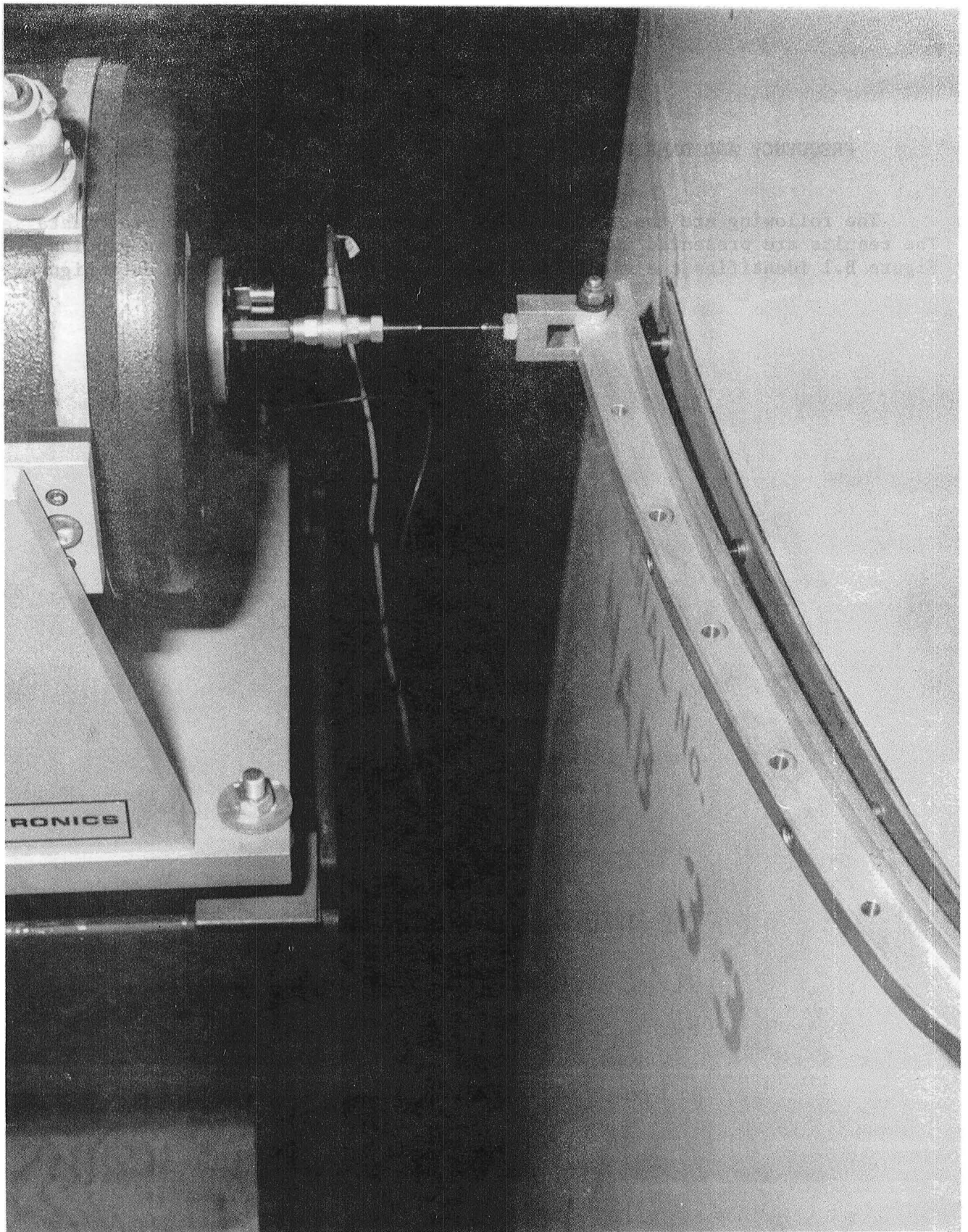


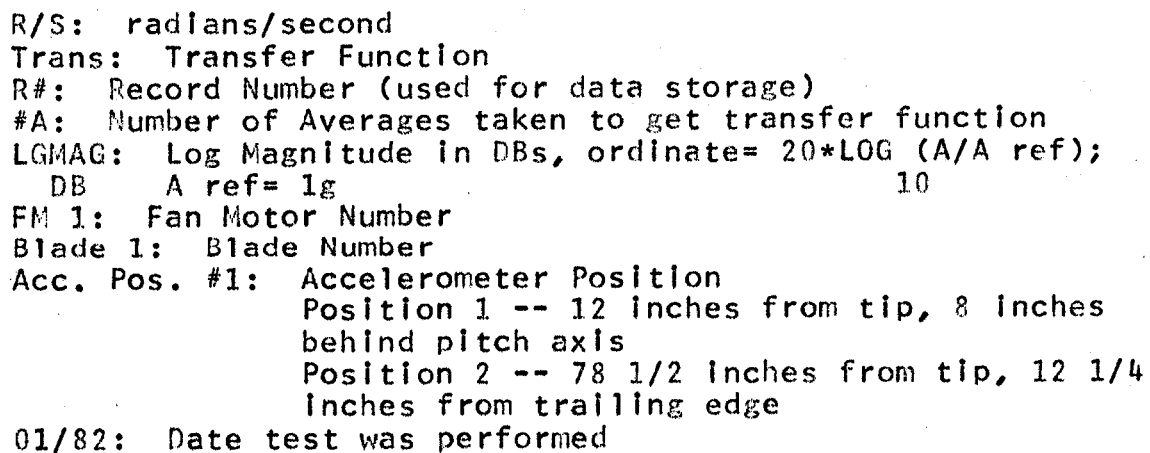
Figure A13.- Shaker-blade link (closeup).

APPENDIX B

FREQUENCY AND DAMPING TABLES AND TRANSFER FUNCTIONS FOR ALL SHAKE TESTS

The following are the tabulated and graphical results for each test data set. The results are presented in the chronological order as discussed in Section 4.0. Figure B.1 identifies the significant information included on each data figure.

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.734	73.728	4.268	493.888	3.184
2	32.429	283.759	10.212	3.329	28.918
3	42.899	289.542	2.745	1.179	7.483
4	84.887	488.581	3.798	2.457	15.448
5	8.888	8.888	8.888	8.888	8.888
6	78.317	479.513	3.788	2.887	18.138
7	128.538	681.949	2.178	2.358	14.882
8	119.372	758.839	1.388	1.582	9.814



65

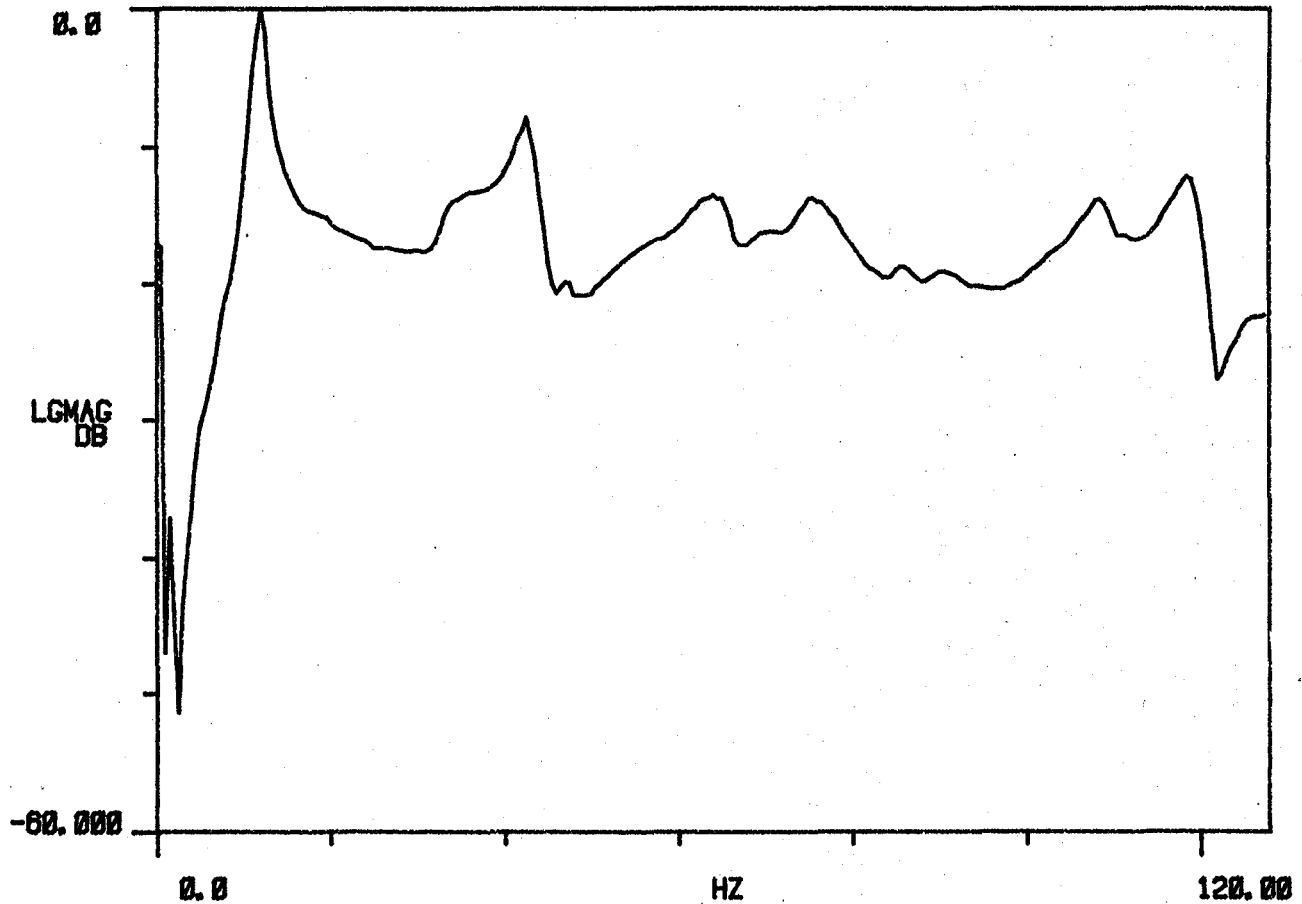
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.734	73.728	4.206	493.988	3.104
2	32.429	203.759	10.212	3.329	20.918
3	42.899	269.542	2.745	1.178	7.403
4	64.897	406.501	3.796	2.457	15.440
5	0.000	0.000	0.000	0.000	0.000
6	76.317	479.513	3.780	2.887	18.136
7	108.536	681.949	2.170	2.356	14.802
8	119.372	750.039	1.308	1.562	9.814

TRANS

R# 22

#A 325



FM1 BLADE 1. ACC. POS. #1. 01/82

FREQUENCY AND DAMPING

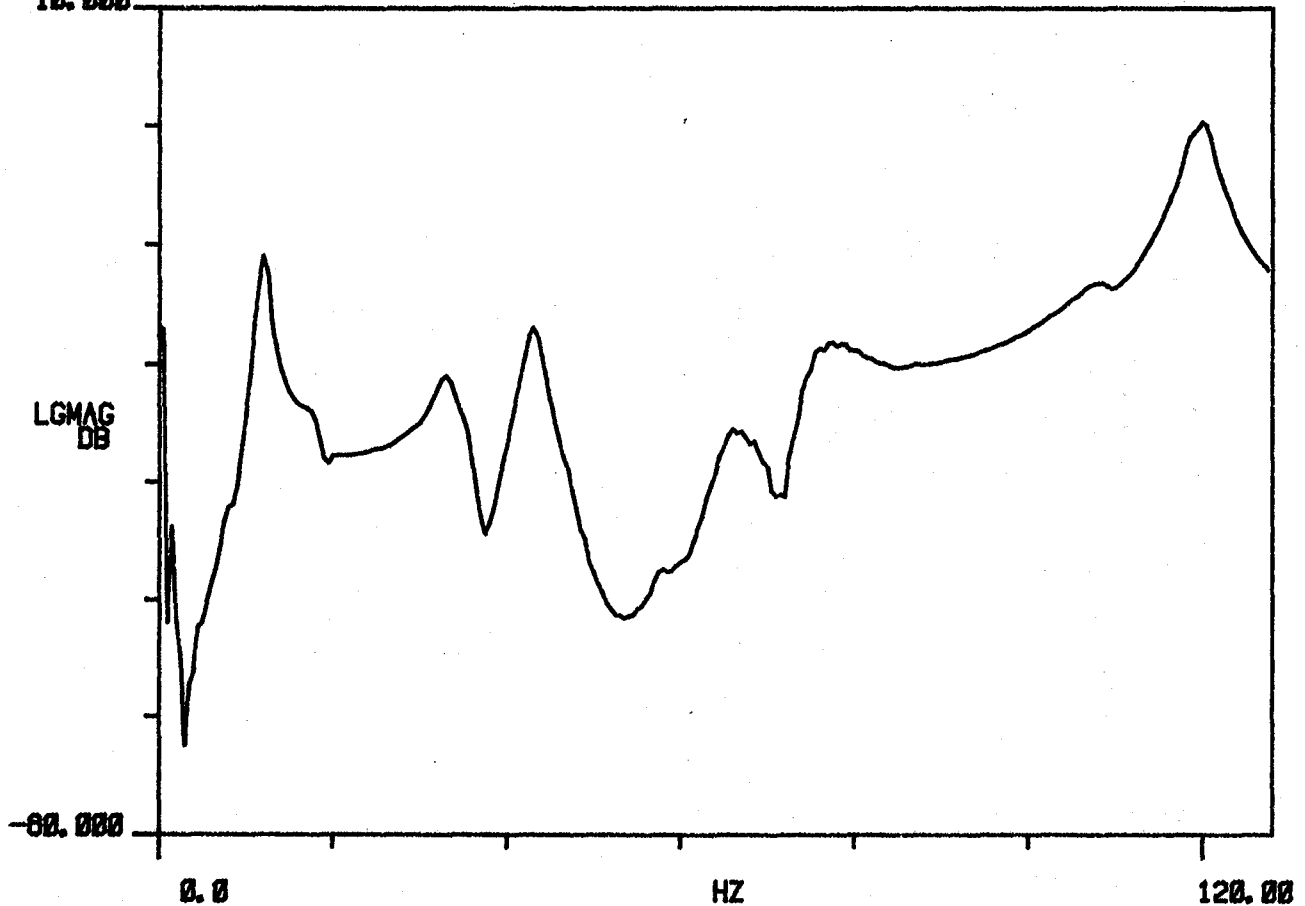
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.799	74.138	3.835	452.787	2.845
2	33.430	210.047	5.219	1.747	10.977
3	42.986	270.151	2.509	1.079	6.780
4	66.986	420.887	3.984	2.671	16.781
5	0.000	0.000	0.000	0.000	0.000
6	75.261	472.876	4.148	3.125	19.633
7	106.374	668.370	2.258	2.403	15.097
8	119.689	752.027	1.428	1.709	10.736

TRANS

R# 23

#A: 325

10.000



FM1 BLADE 1. ACC. POS. #2. 01/82

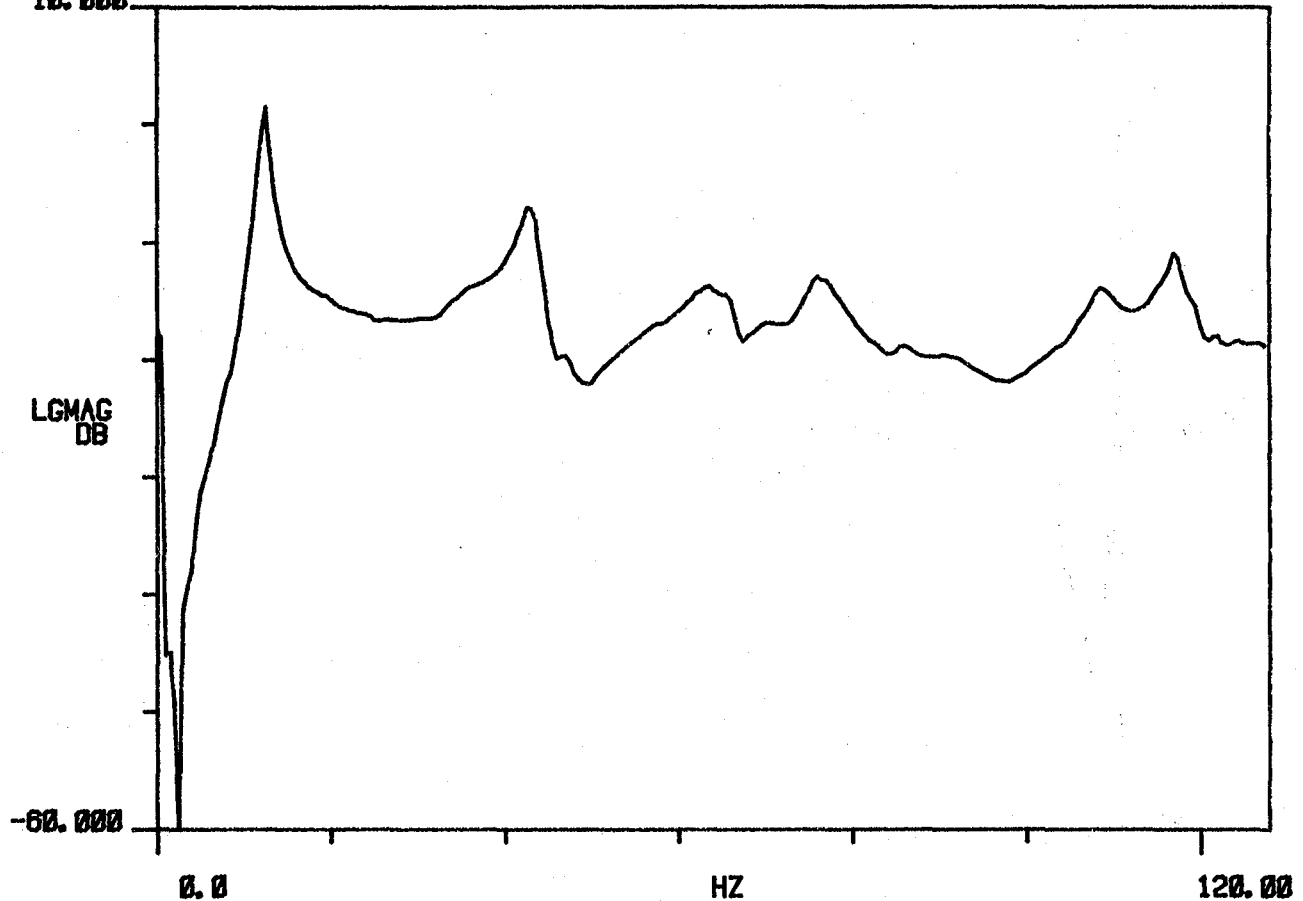
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.205	76.689	3.513	429.040	2.696
2	0.000	0.000	0.000	0.000	0.000
3	43.119	270.922	2.558	1.103	6.933
4	64.548	405.565	4.390	2.836	17.821
5	0.000	0.000	0.000	0.000	0.000
6	76.591	481.233	3.008	2.305	14.484
7	108.609	682.413	2.429	2.639	16.582
8	117.855	740.507	1.217	1.434	9.012

TRANS
10.000

R# 20

#A 325



FM1 BLADE 2. ACC. POS. #1. 01/82

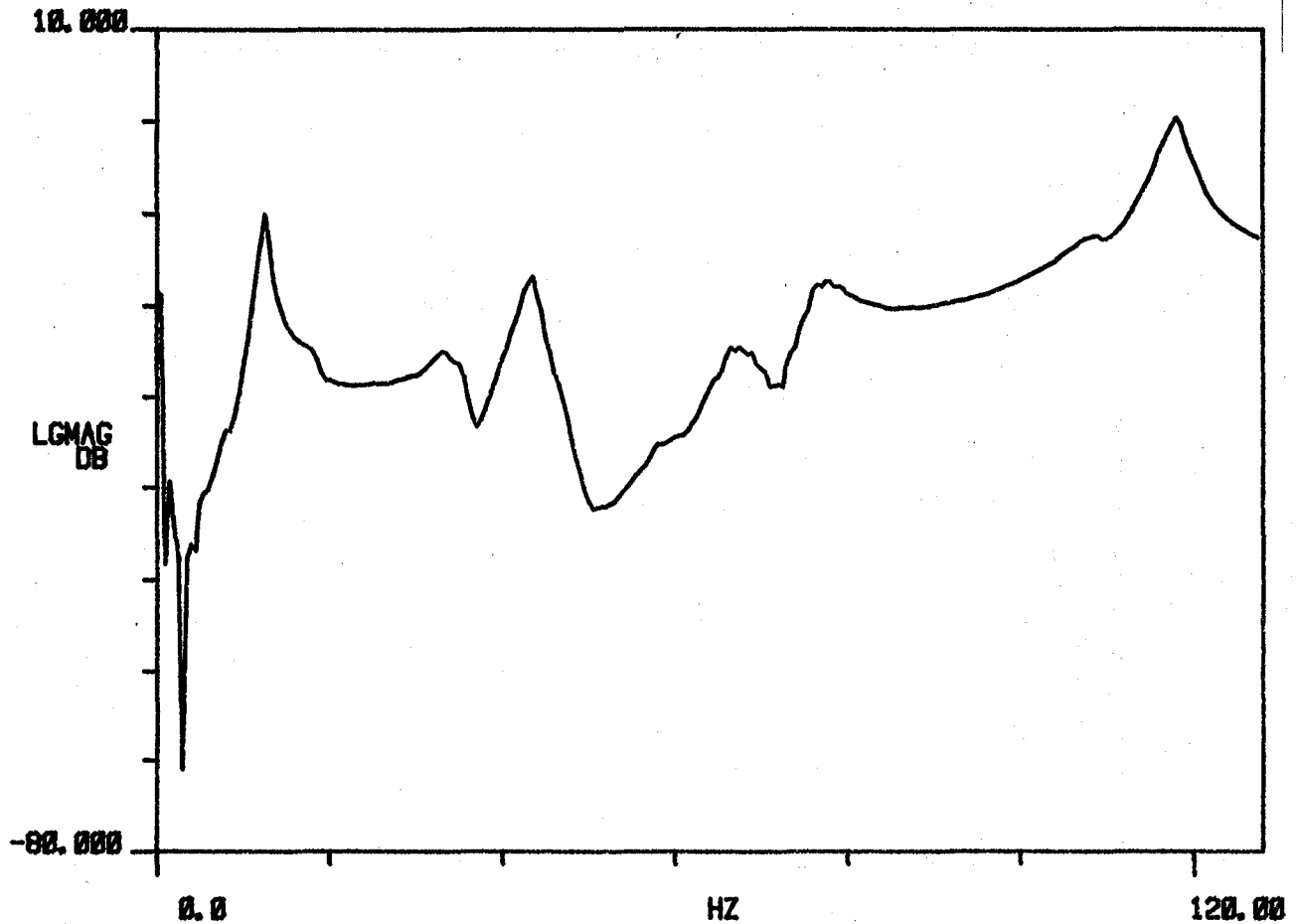
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.257	77.016	3.007	368.705	2.317
2	34.245	215.170	5.682	1.949	12.246
3	43.293	272.019	2.425	1.050	6.597
4	0.000	0.000	0.000	0.000	0.000
5	68.577	430.882	3.898	2.675	16.809
6	76.184	478.677	3.296	2.512	15.786
7	106.804	671.068	2.359	2.520	15.834
8	117.807	740.203	1.363	1.606	10.093

TRANS

R# 21

#A 325



FM1 BLADE 2. ACC. POS. #2. 01/82

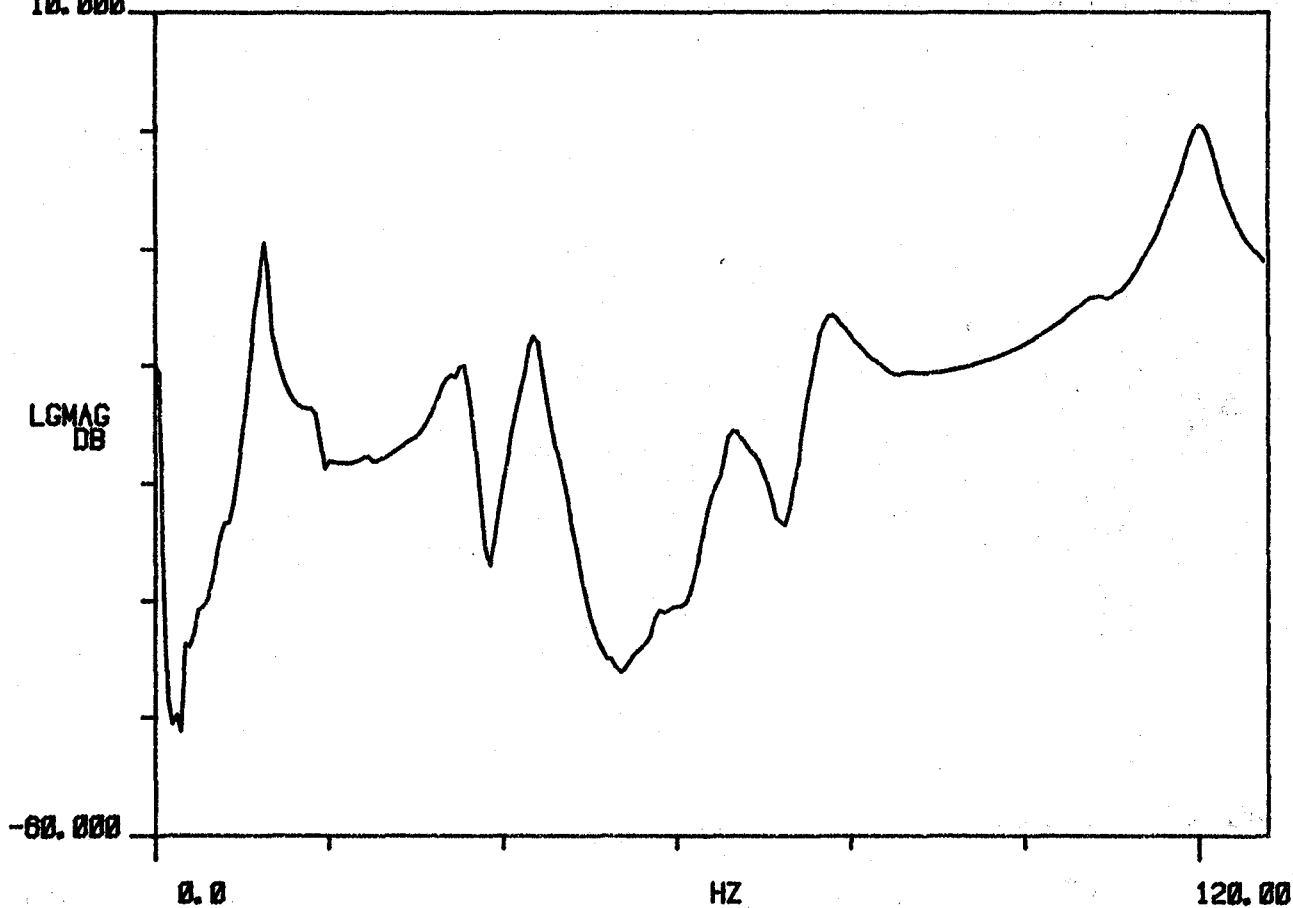
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.225	76.811	2.828	345.882	2.173
2	35.319	221.914	4.290	1.517	9.530
3	43.508	273.369	2.255	981.284	6.166
4	67.495	424.081	3.365	2.273	14.279
5	0.000	0.000	0.000	0.000	0.000
6	77.051	484.126	2.559	1.972	12.393
7	0.000	0.000	0.000	0.000	0.000
8	120.184	754.633	1.479	1.777	11.163

TRANS
10.000

R# 19

#A 325



FM1 BLADE 3. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

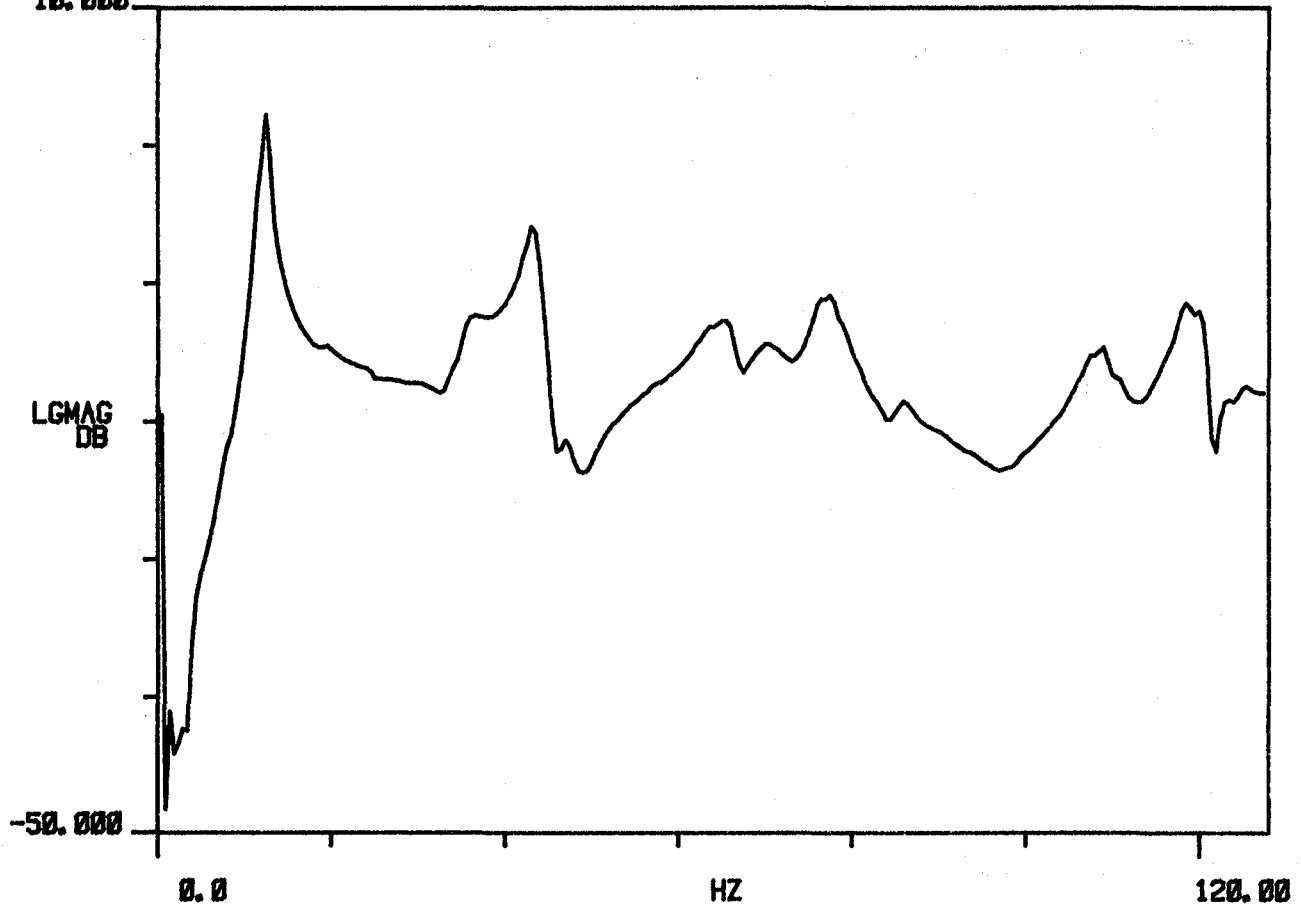
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.221	76.787	2.884	352.648	2.216
2	34.589	217.327	5.762	1.996	12.543
3	43.431	272.888	2.201	956.046	6.007
4	65.154	409.376	3.407	2.221	13.955
5	70.044	440.100	1.022	716.215	4.500
6	77.384	486.215	2.505	1.939	12.182
7	108.297	680.448	1.983	2.148	13.497
8	119.733	752.306	1.009	1.208	7.588

TRANS

R# 18

#A 325

10.000



FM1 BLADE 3. ACC. POS. #1. 01/82

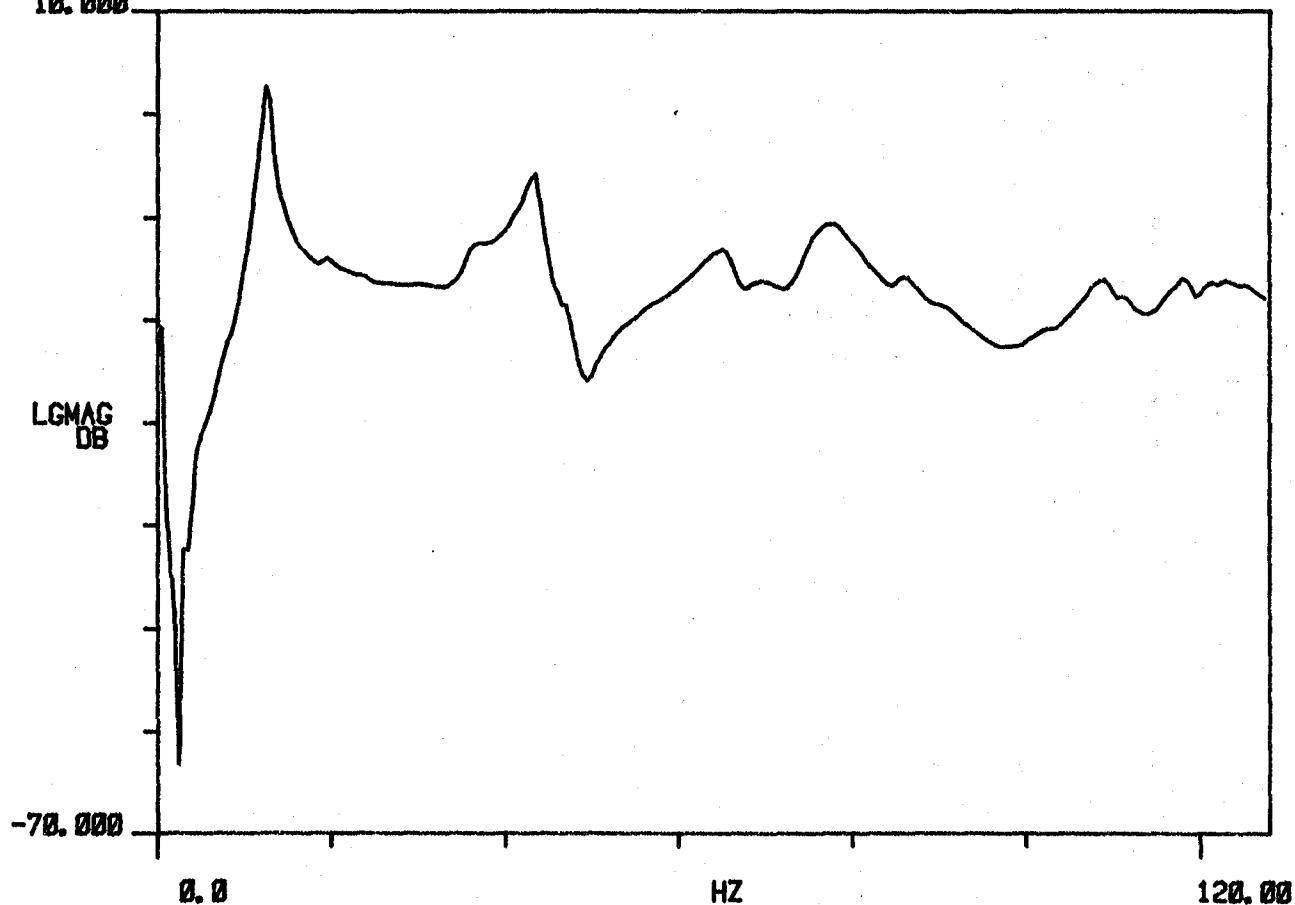
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.333	77.491	2.401	296.256	1.861
2	35.100	220.540	6.268	2.204	13.851
3	43.488	273.242	2.378	1.035	6.501
4	65.043	408.680	3.359	2.186	13.734
5	0.000	0.000	0.000	0.000	0.000
6	77.331	485.883	3.687	2.853	17.927
7	108.829	683.795	1.899	2.067	12.986
8	118.731	746.007	1.088	1.292	8.118

TRANS
10.000

R#: 16

#A: 325



FM1 BLADE 4. ACC. POS. #1. 01/82

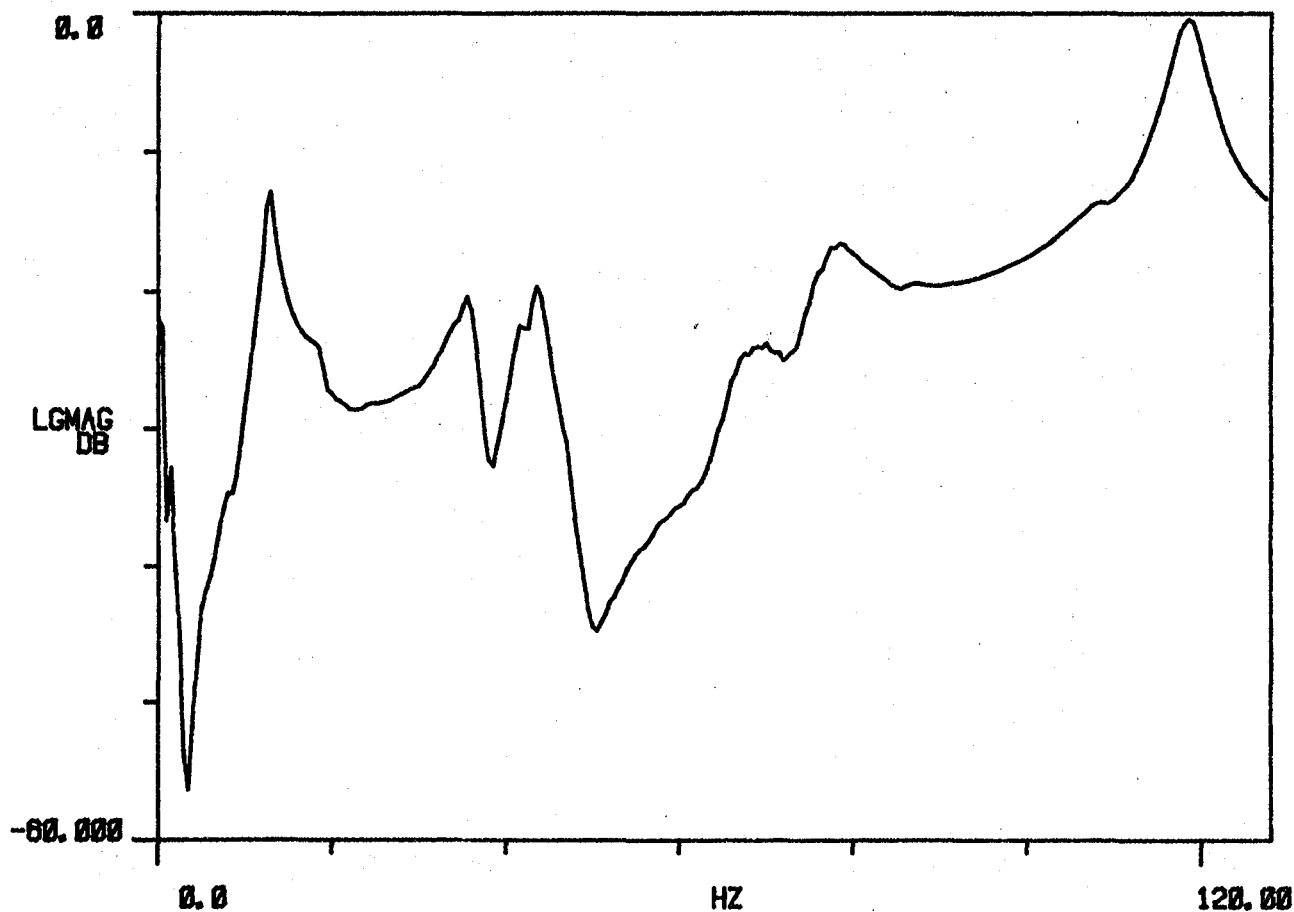
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.549	78.849	5.366	674.364	4.237
2	35.794	224.901	3.605	1.291	8.113
3	43.621	274.077	3.127	1.365	8.576
4	0.000	0.000	0.000	0.000	0.000
5	69.743	438.211	4.334	3.026	19.011
6	76.934	483.390	3.746	2.884	18.118
7	0.000	0.000	0.000	0.000	0.000
8	118.464	744.329	1.484	1.758	11.047

TRANS

R# 17

#A 325



FM1 BLADE 4. ACC. POS. #2. 01/82

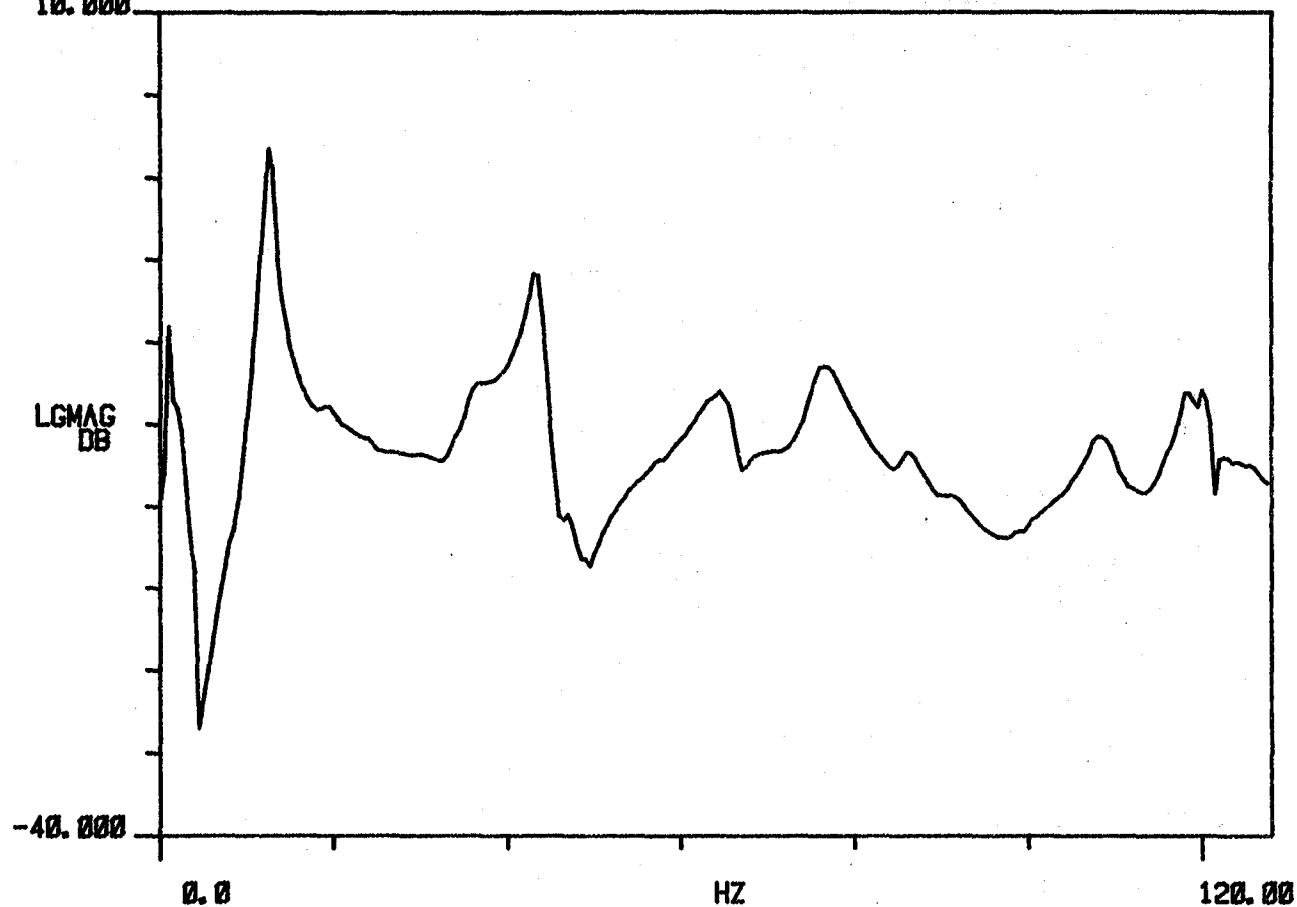
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.311	77.354	2.695	331.929	2.086
2	34.568	217.197	7.065	2.448	15.384
3	43.525	273.474	2.098	913.335	5.739
4	64.856	407.500	3.163	2.053	12.697
5	0.000	0.000	0.000	0.000	0.000
6	76.618	481.407	3.000	2.300	14.450
7	108.661	682.735	2.123	2.308	14.500
8	119.803	752.747	1.021	1.224	7.689

TRANS
10.000

R# 14

#A 325



FM1 BLADE 5. ACC. POS. #1. 01/82

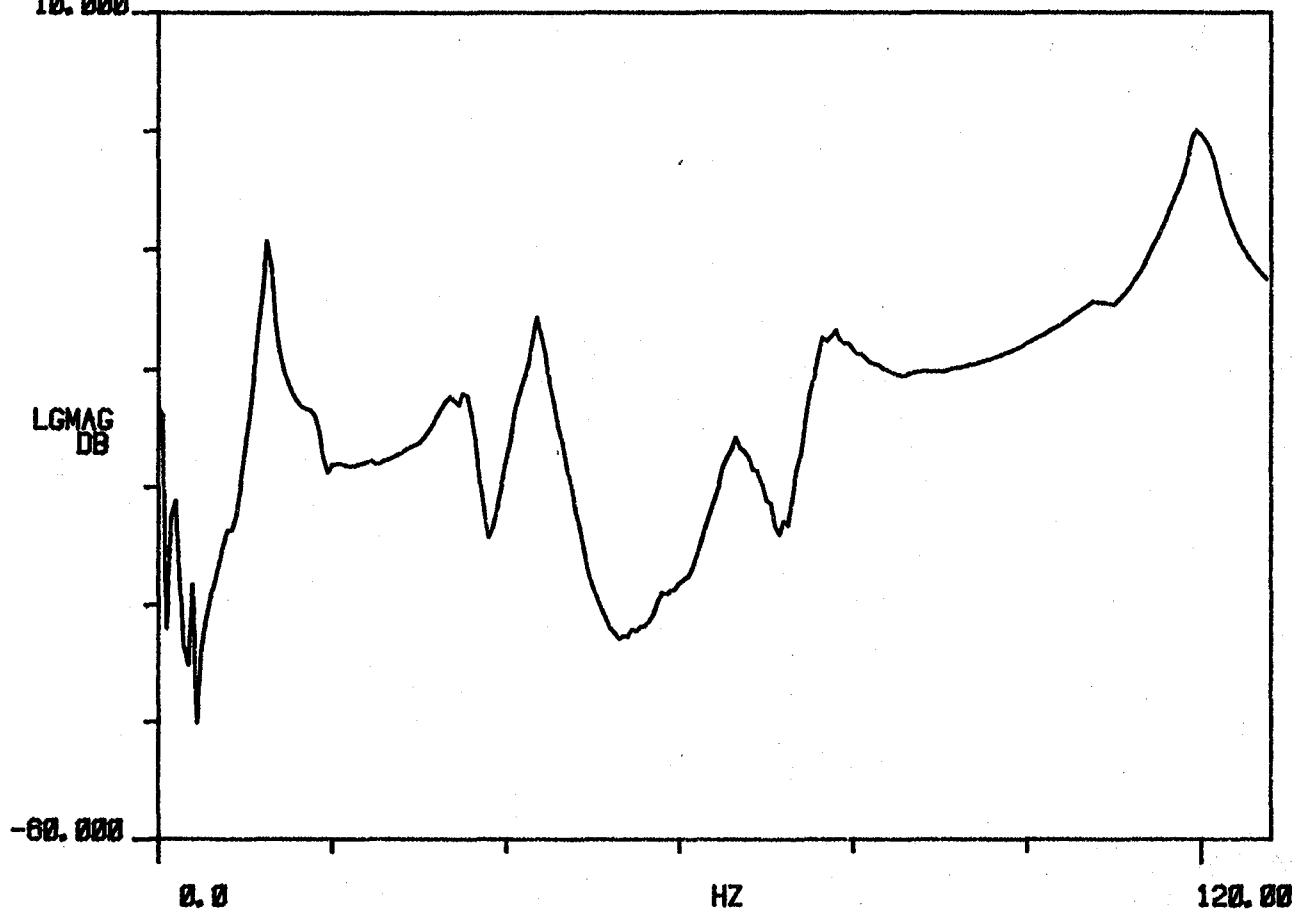
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.298	77.273	2.724	335.155	2.186
2	35.197	221.147	5.339	1.882	11.825
3	43.578	273.755	2.287	987.815	6.287
4	66.978	428.785	3.288	2.198	13.889
5	0.000	0.000	0.000	0.000	0.000
6	76.488	488.538	3.048	2.326	14.613
7	105.363	662.815	2.433	2.565	16.115
8	119.927	753.524	1.368	1.631	18.247

TRANS
10.000

R# 15

#A 325



FM1 BLADE 5. ACC. POS. #2. 01/82

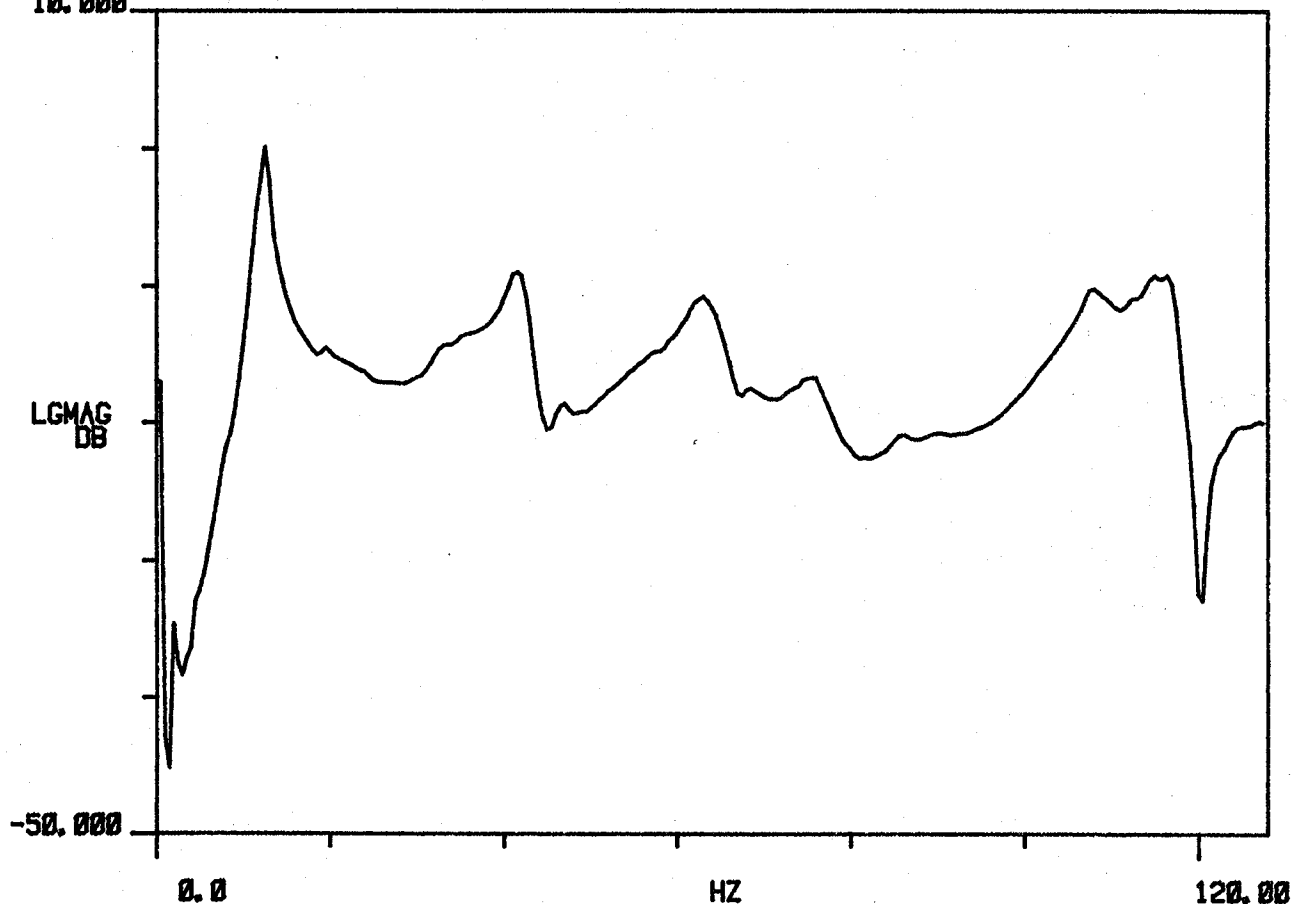
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.176	76.501	4.156	506.508	3.182
2	0.000	0.000	0.000	0.000	0.000
3	42.056	264.243	3.136	1.319	8.290
4	63.471	398.798	3.598	2.285	14.358
5	0.000	0.000	0.000	0.000	0.000
6	76.765	482.328	2.128	1.634	10.266
7	107.820	677.452	2.996	3.232	20.305
8	116.969	734.941	1.815	2.123	13.340

TRANS
10.000

R# 12

#A 325



FM1 BLADE 6. ACC. POS. #1. 01/82

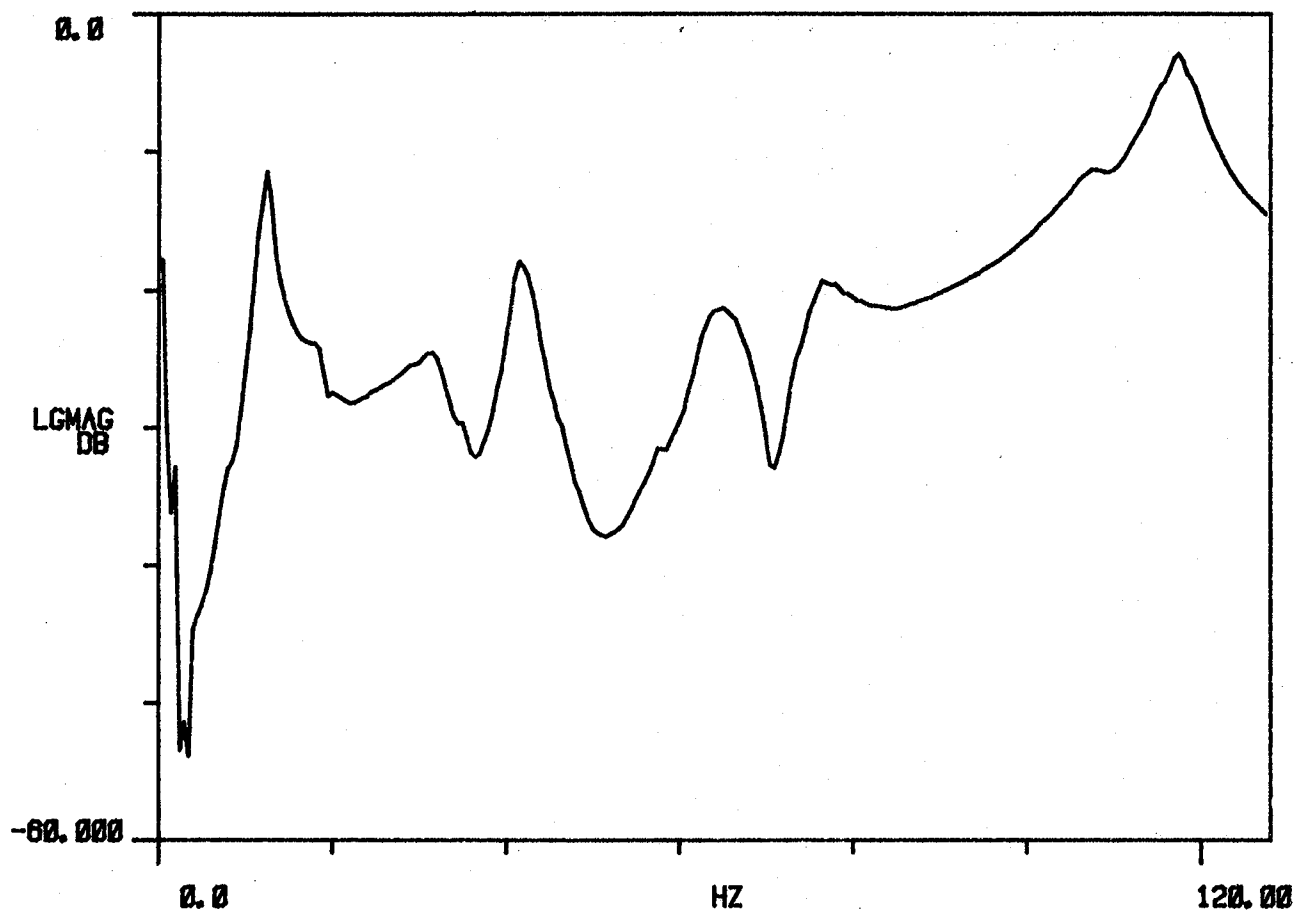
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.161	76.408	4.247	516.897	3.248
2	31.865	200.213	7.497	2.396	15.052
3	41.858	263.002	2.809	1.176	7.390
4	64.729	406.702	3.822	2.476	15.555
5	0.000	0.000	0.000	0.000	0.000
6	75.476	474.230	3.714	2.805	17.626
7	106.012	666.092	3.755	3.984	25.033
8	117.461	738.027	2.145	2.520	15.833

TRANS

R# 13

#A 325



FM1 BLADE 6. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

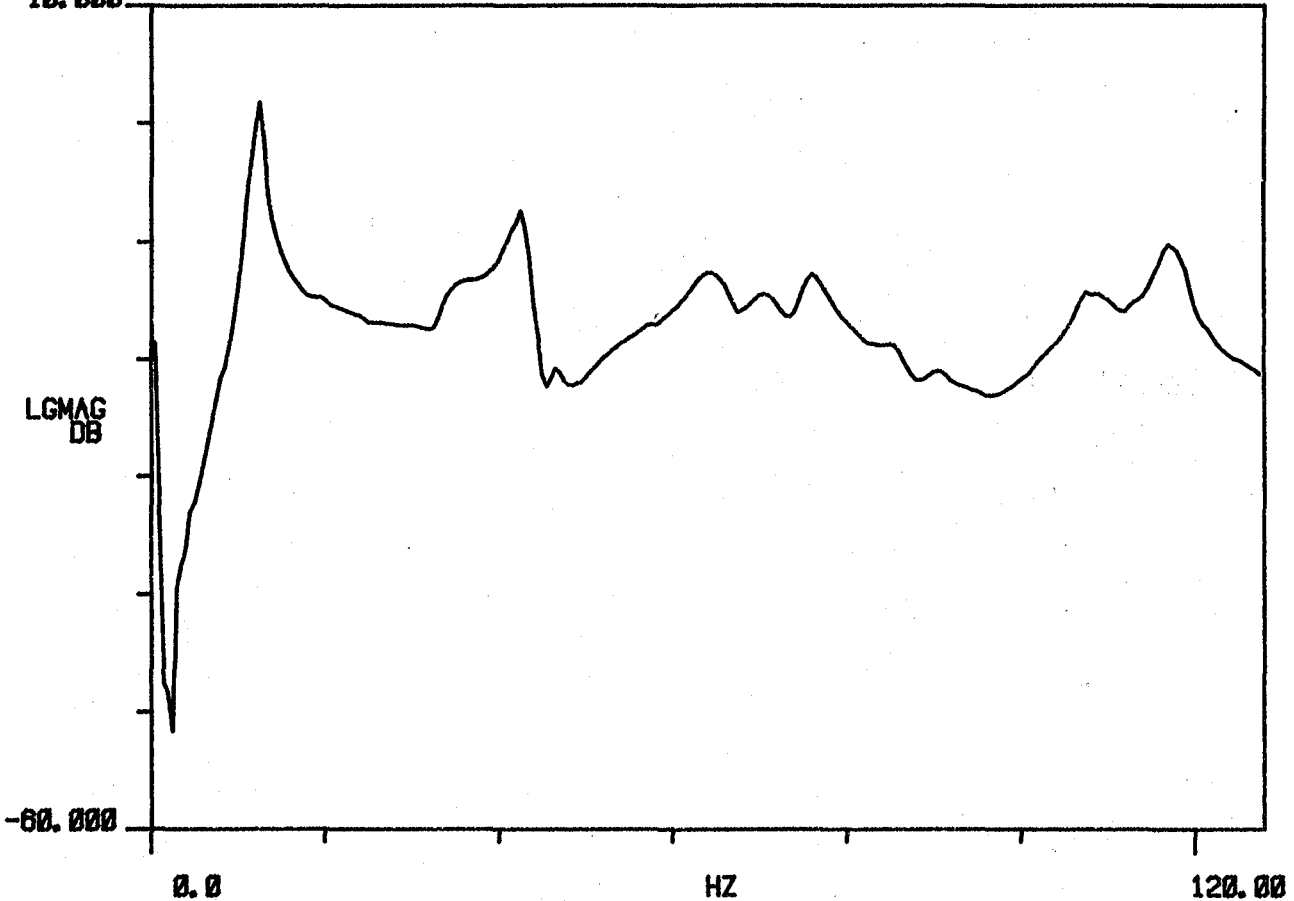
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.140	76.277	3.322	403.521	2.535
2	33.559	210.857	7.798	2.625	18.493
3	42.815	269.011	2.437	1.044	6.558
4	64.378	404.499	4.024	2.593	18.290
5	71.011	446.177	1.180	837.644	5.263
6	76.357	479.765	2.207	1.686	10.592
7	107.740	676.950	2.848	3.070	19.289
8	118.137	742.277	1.213	1.433	9.003

TRANS

R# 9

#A 325

10.000



FM 1 BLADE 7, ACC POS. #1, 01/82

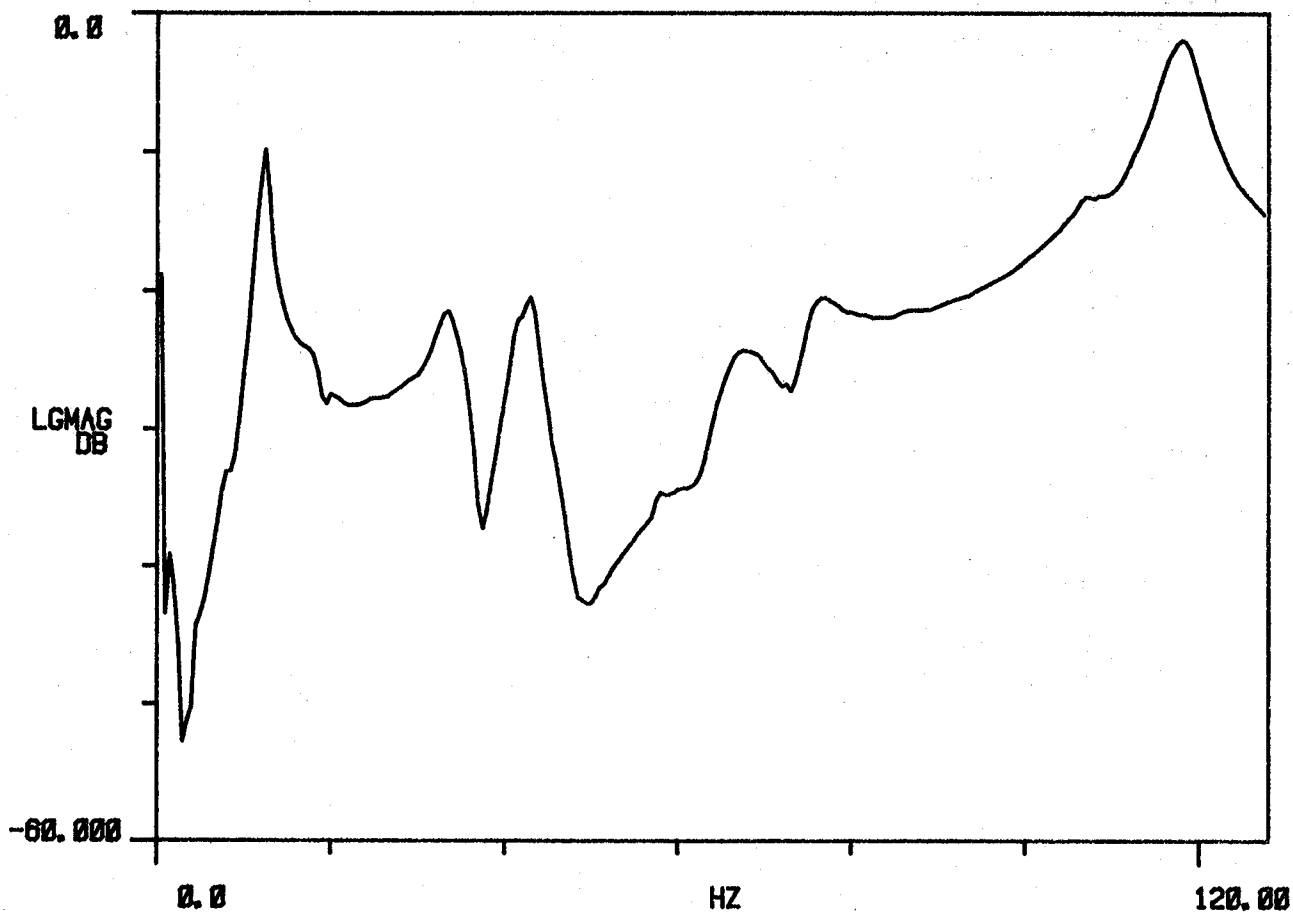
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.144	76.304	3.260	396.061	2.489
2	33.838	212.613	4.682	1.586	9.966
3	42.710	268.353	2.563	1.095	6.879
4	68.323	429.288	4.942	3.381	21.242
5	0.000	0.000	0.000	0.000	0.000
6	75.470	474.194	2.377	1.795	11.275
7	106.219	667.395	4.062	4.318	27.132
8	117.902	740.801	1.758	2.073	13.022

TRANS

R# 10

#A 325



FM1 BLADE 7. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

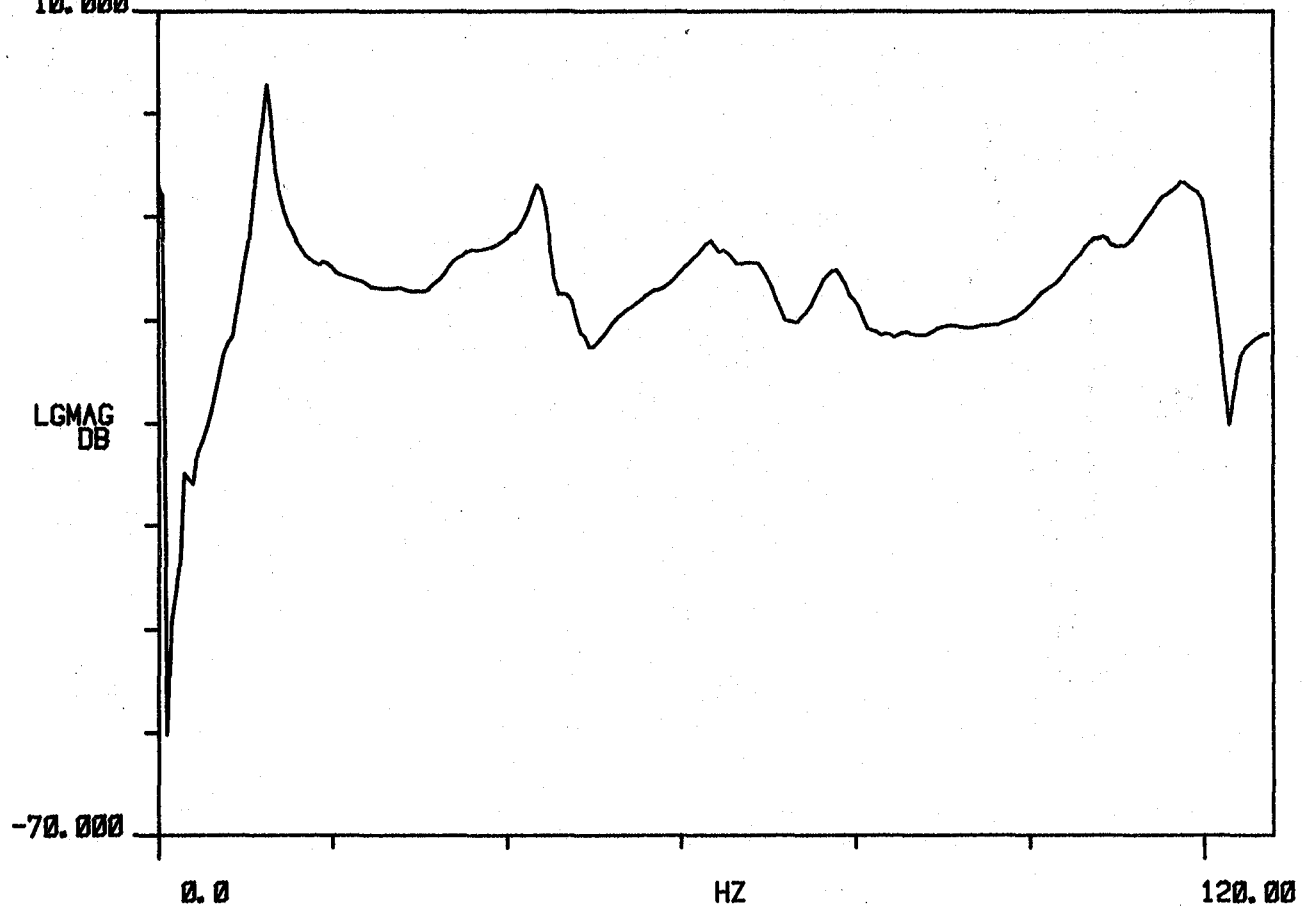
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.280	77.156	3.185	391.347	2.459
2	33.473	210.320	11.759	3.964	24.904
3	43.965	276.239	2.210	971.734	6.106
4	63.266	397.511	3.901	2.470	15.517
5	70.757	444.577	2.979	2.109	13.248
6	77.734	488.417	1.938	1.507	9.466
7	107.216	673.661	2.638	2.830	17.778
8	118.860	746.822	2.003	2.381	14.961

TRANS

R# 13

#A 325

10.000



FM4 BLADE 08. ACC. POS. #1. 11/81

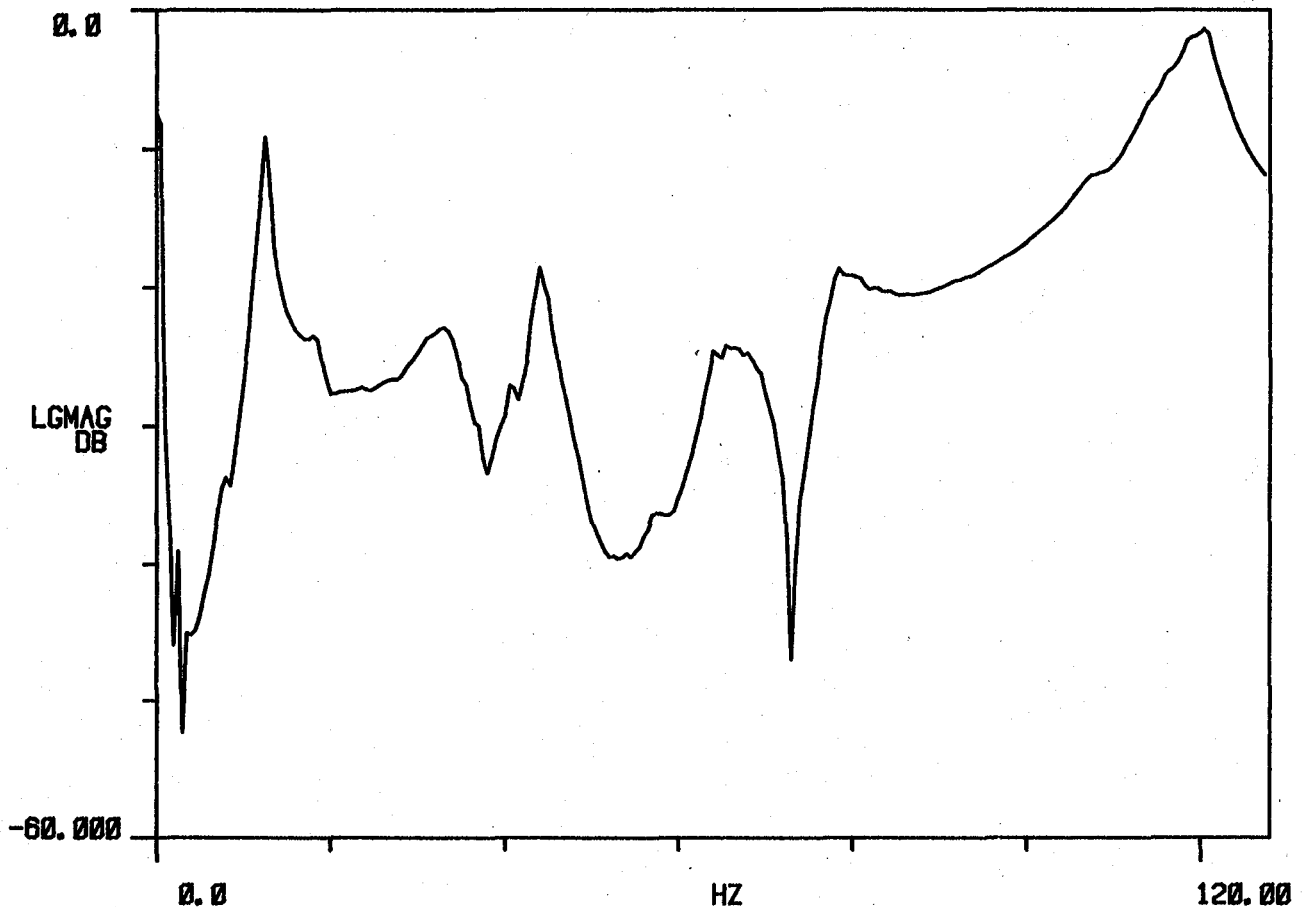
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.285	77.191	3.182	391.064	2.457
2	33.414	209.948	7.459	2.499	15.704
3	44.149	277.397	2.288	1.010	6.347
4	65.977	414.543	4.732	3.125	19.637
5	0.000	0.000	0.000	0.000	0.000
6	77.707	488.249	2.930	2.278	14.312
7	0.000	0.000	0.000	0.000	0.000
8	120.015	754.074	2.290	2.749	17.270

TRANS

R# 14

#A 325



FM4 BLADE 08. ACC. POS. #2. 11/81

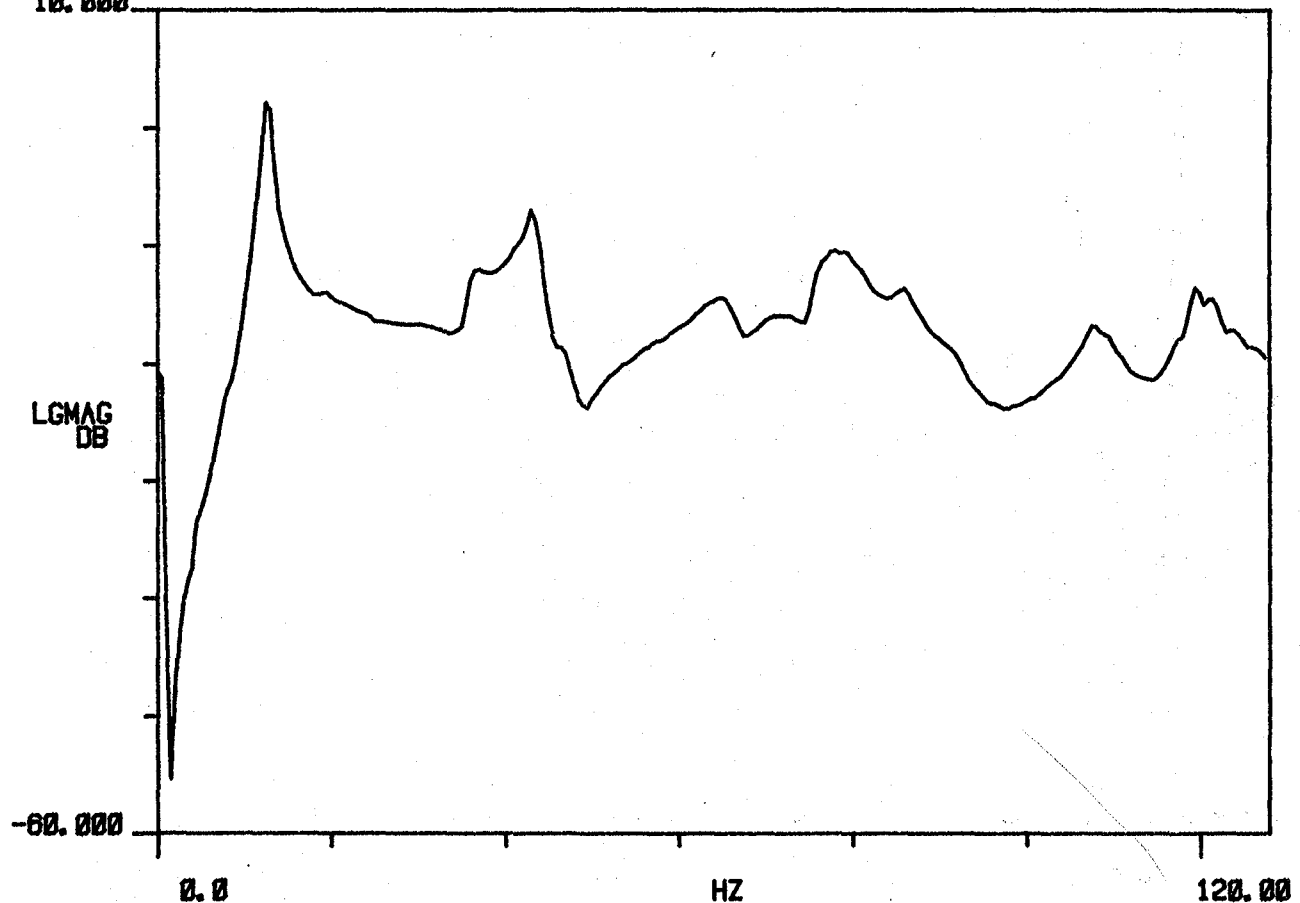
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.363	77.678	2.184	270.042	1.697
2	35.701	224.318	4.036	1.442	9.062
3	43.499	273.313	2.403	1.046	6.570
4	65.042	408.669	2.815	1.831	11.507
5	71.253	447.693	-925.828	-659.704	-4.145
6	77.769	488.638	3.424	2.664	16.739
7	108.237	680.073	2.301	2.492	15.656
8	120.490	757.063	861.857	1.038	6.525

TRANS
10.000

R# 5

#A 325



FM1 BLADE 9. ACC. POS. #1. 01/02

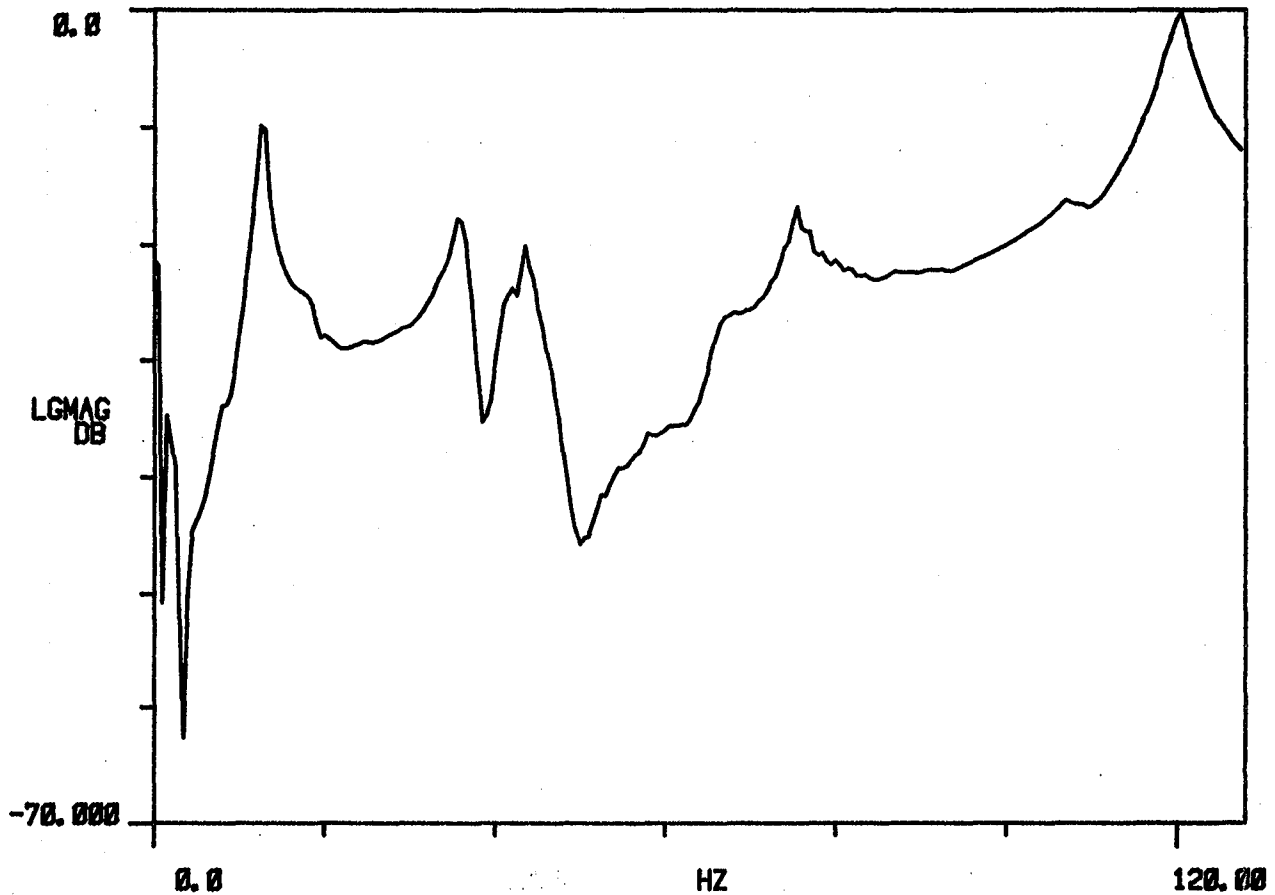
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.375	77.752	2.231	276.125	1.735
2	35.994	226.156	2.547	916.970	5.761
3	43.636	274.173	2.878	1.256	7.893
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	75.831	476.462	1.709	1.296	8.145
7	106.281	667.785	841.529	894.420	5.620
8	120.072	754.433	1.277	1.534	9.637

TRANS

R# 6

#A 325



FM1 BLADE 9. ACC. POS. 2. 01/82

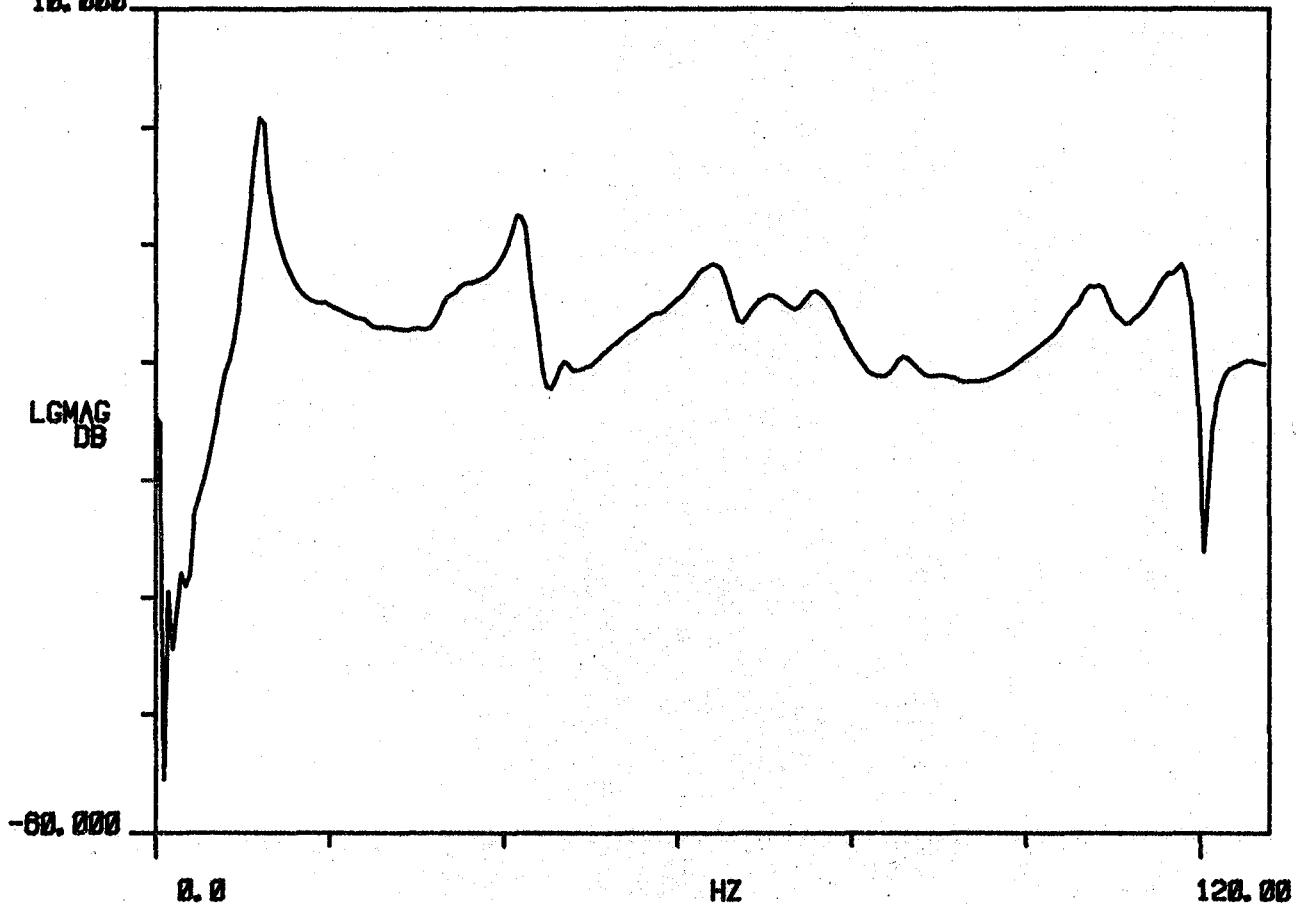
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.888	74.848	3.489	405.285	2.548
2	32.827	205.003	11.398	3.743	23.519
3	42.189	265.081	2.323	980.508	8.181
4	64.512	405.343	3.102	2.002	12.580
5	70.684	444.120	2.439	1.725	10.836
6	77.255	485.405	2.886	2.231	14.017
7	108.246	680.132	1.989	2.153	13.530
8	118.238	742.912	1.351	1.597	10.036

TRANS
10.000

R# 7

#A 325



FM1 BLADE 10. ACC. POS. #1. 01/82

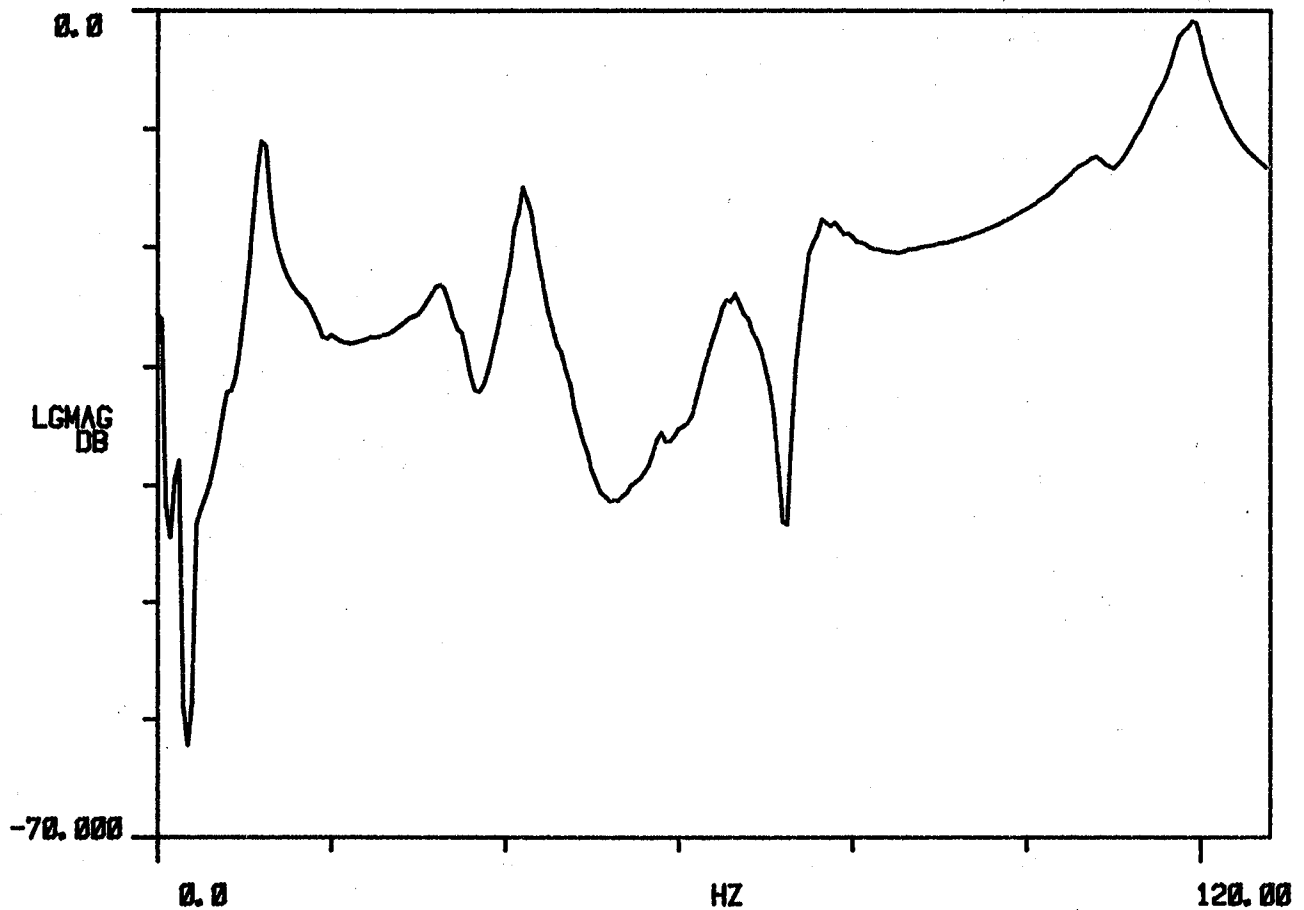
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.858	74.587	3.419	405.853	2.549
2	32.991	207.287	5.244	1.732	10.884
3	42.121	264.651	2.181	918.885	5.774
4	66.262	416.336	3.251	2.155	13.540
5	0.000	0.000	0.000	0.000	0.000
6	75.598	474.994	2.957	2.236	14.052
7	107.041	672.556	929.430	994.911	6.251
8	118.786	746.228	1.520	1.806	11.344

TRANS

R# 8

#A 325



FM 1 BLADE 10, ACC. POS. #2, 01/82

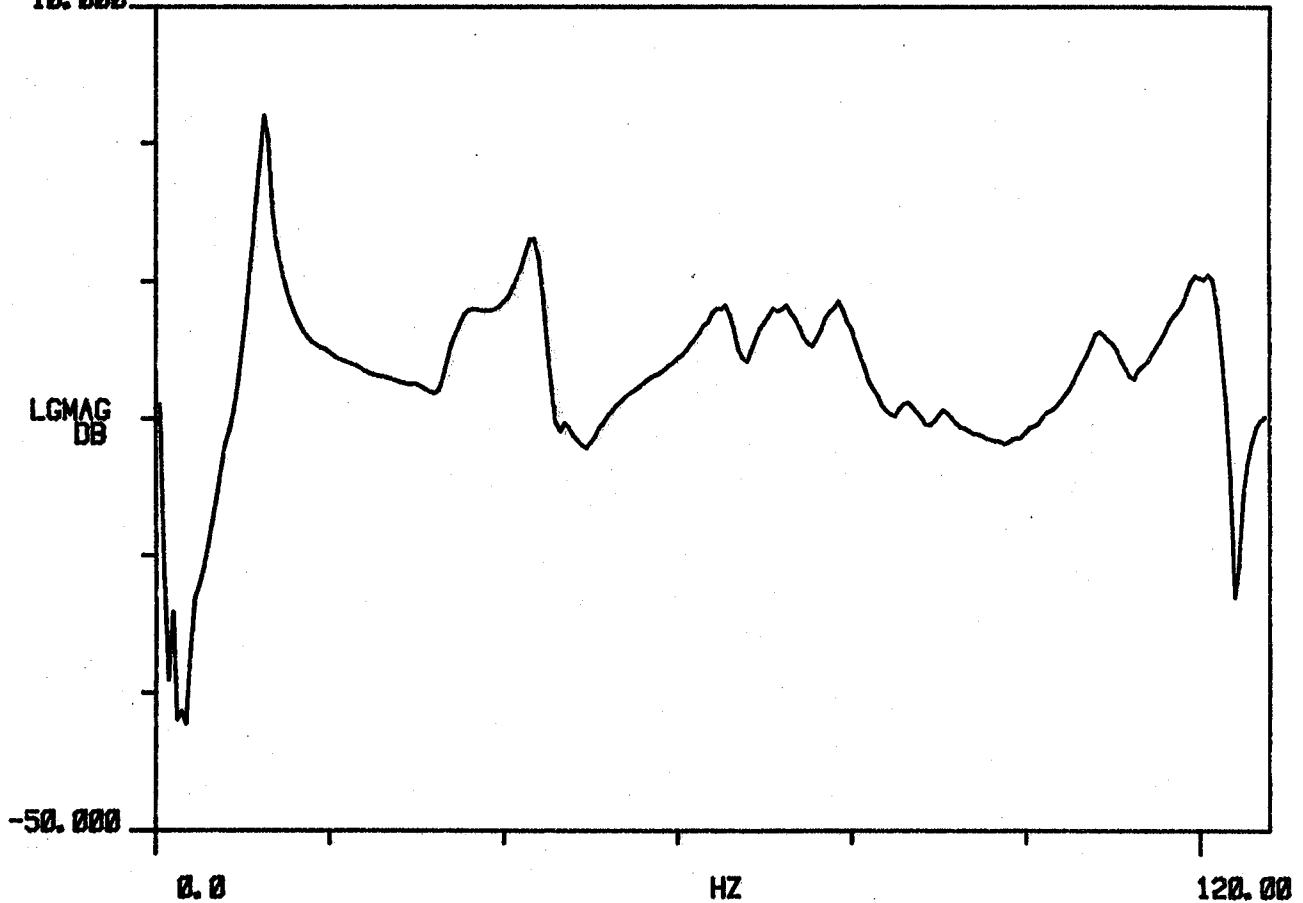
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.326	77.444	3.446	425.018	2.670
2	34.112	214.329	7.643	2.615	16.490
3	43.693	274.529	2.395	1.047	6.577
4	65.282	410.177	2.782	1.817	11.415
5	71.729	450.685	2.917	2.093	13.152
6	78.948	496.043	2.320	1.832	11.512
7	108.497	681.707	1.946	2.112	13.270
8	120.897	759.621	1.590	1.923	12.082

TRANS
10.000

R# 11

#A 325



FM1 BLADE 11. ACC. POS. #1. 01/82

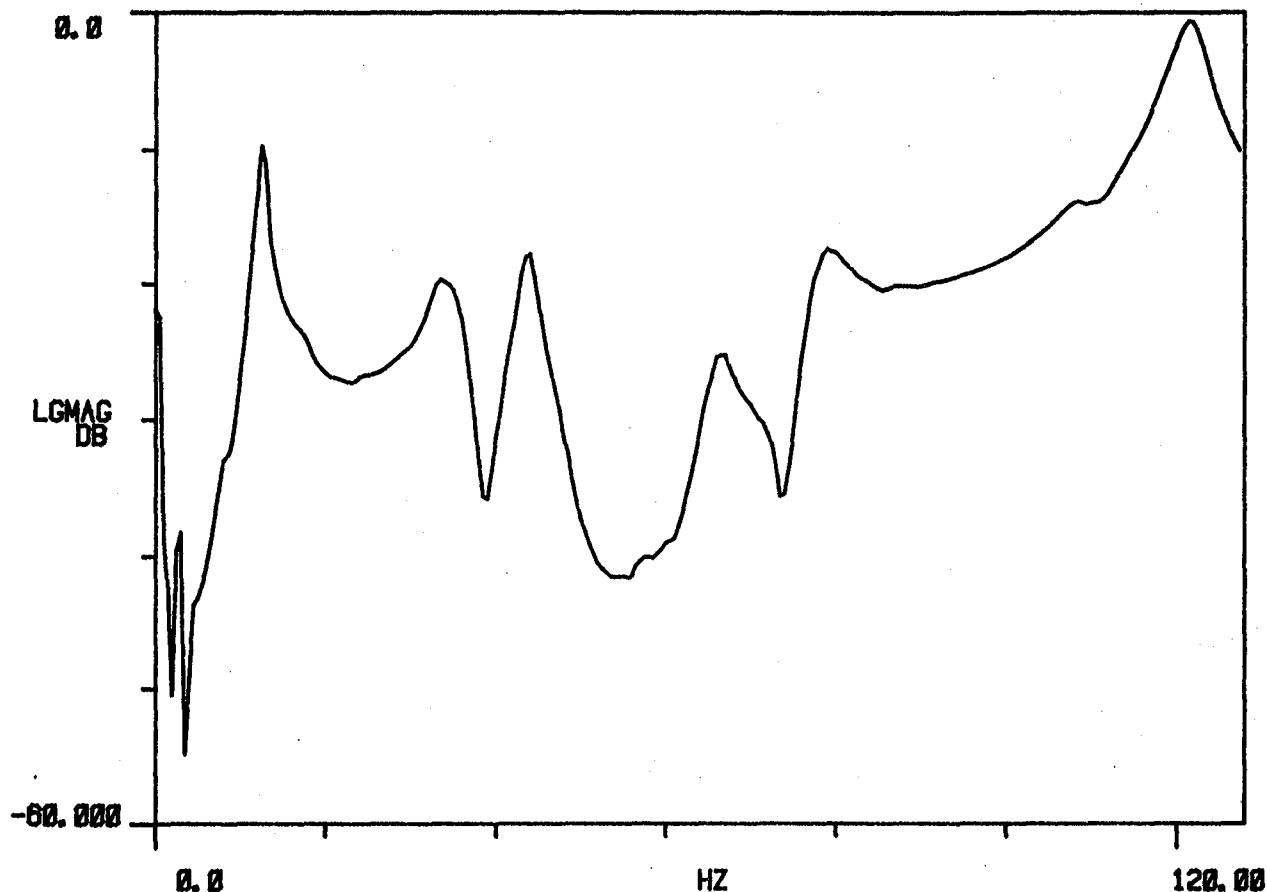
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	X	HZ	R/S
1	12.318	77.397	3.373	415.668	2.612
2	34.453	216.478	5.644	1.948	12.239
3	43.772	275.025	2.365	1.035	6.506
4	66.140	415.573	2.920	1.932	12.141
5	0.000	0.000	0.000	0.000	0.000
6	78.094	490.676	2.850	2.227	13.990
7	107.322	674.322	3.577	3.842	24.138
8	121.566	763.820	1.785	2.170	13.636

TRANS

R# 2

#A 325



FM1 BLADE 11. ACC. POS. #2. 01/82

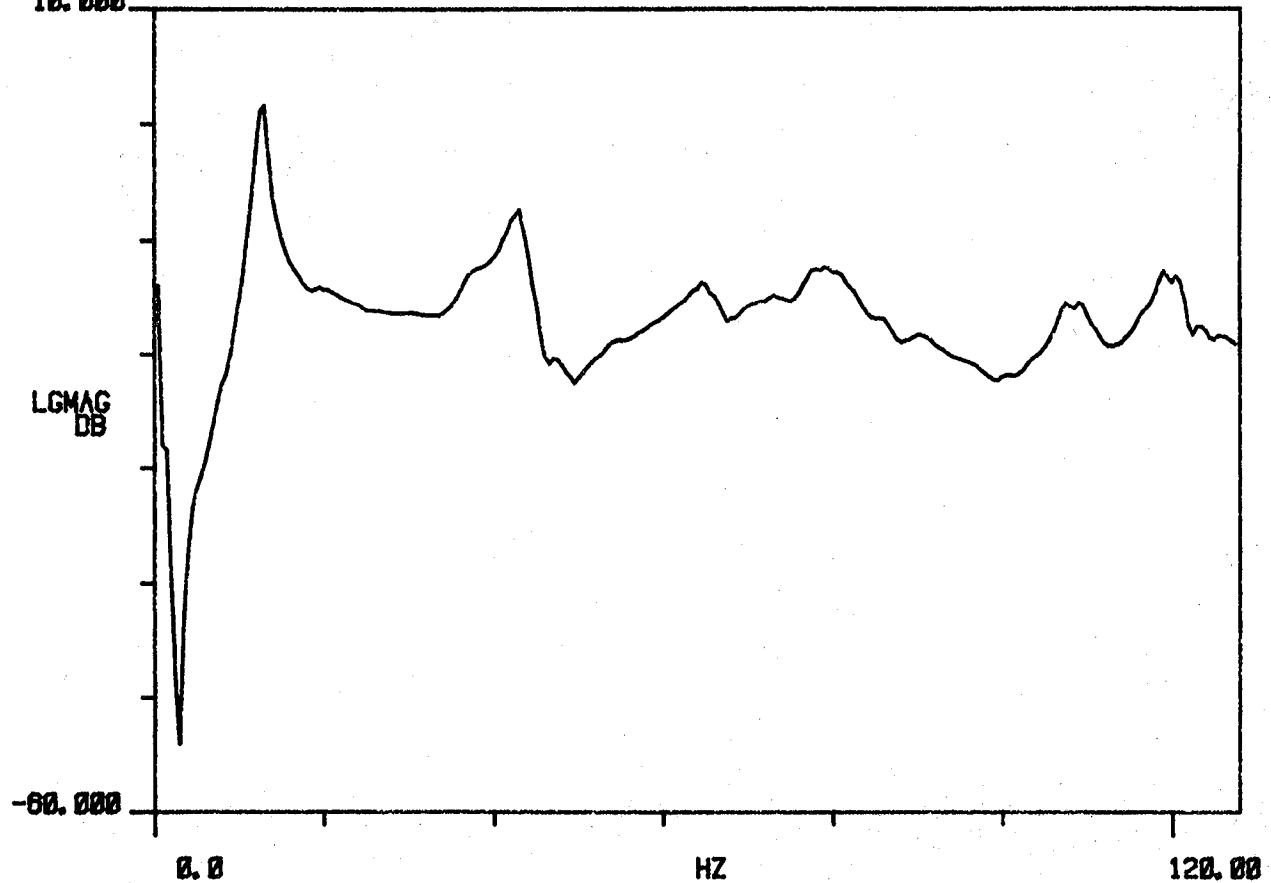
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.480	78.411	3.121	389.621	2.448
2	0.000	0.000	0.000	0.000	0.000
3	43.123	270.952	2.908	1.255	7.884
4	64.796	407.123	3.365	2.182	13.709
5	0.000	0.000	0.000	0.000	0.000
6	79.450	499.196	4.487	3.569	22.423
7	108.393	681.054	2.058	2.232	14.022
8	120.383	756.388	1.022	1.238	7.728

TRANS
10.000

R# 32

#A 325



FM1 BLADE 12. ACC. POS. #1. 01/82

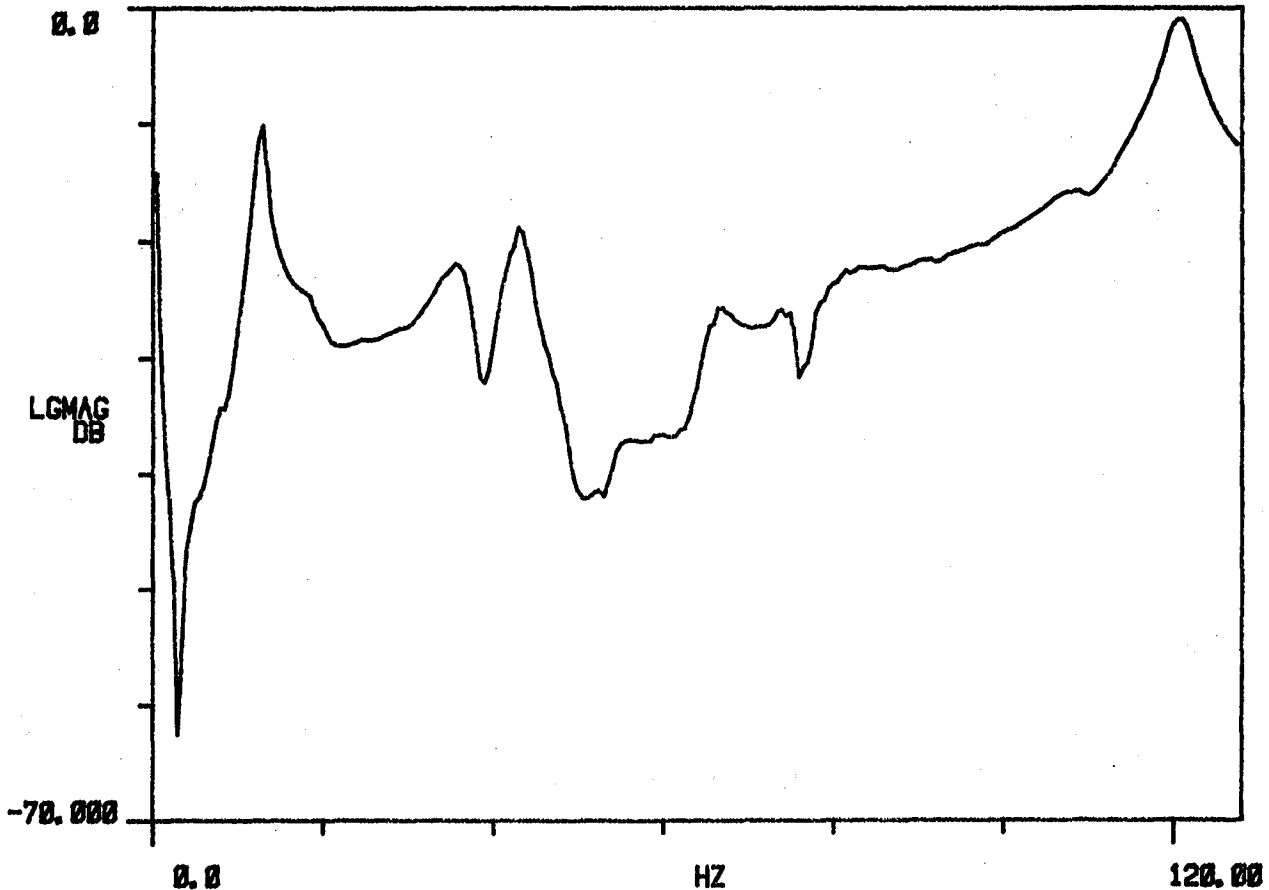
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.521	78.673	3.232	404.889	2.544
2	36.152	227.152	5.234	1.895	11.906
3	43.153	271.141	2.731	1.179	7.408
4	65.845	413.719	3.169	2.088	13.116
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.364	662.020	2.624	2.766	17.379
8	120.646	756.039	1.411	1.702	10.694

TRANS

R# 33

#A 325



FM1 BLADE 12. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

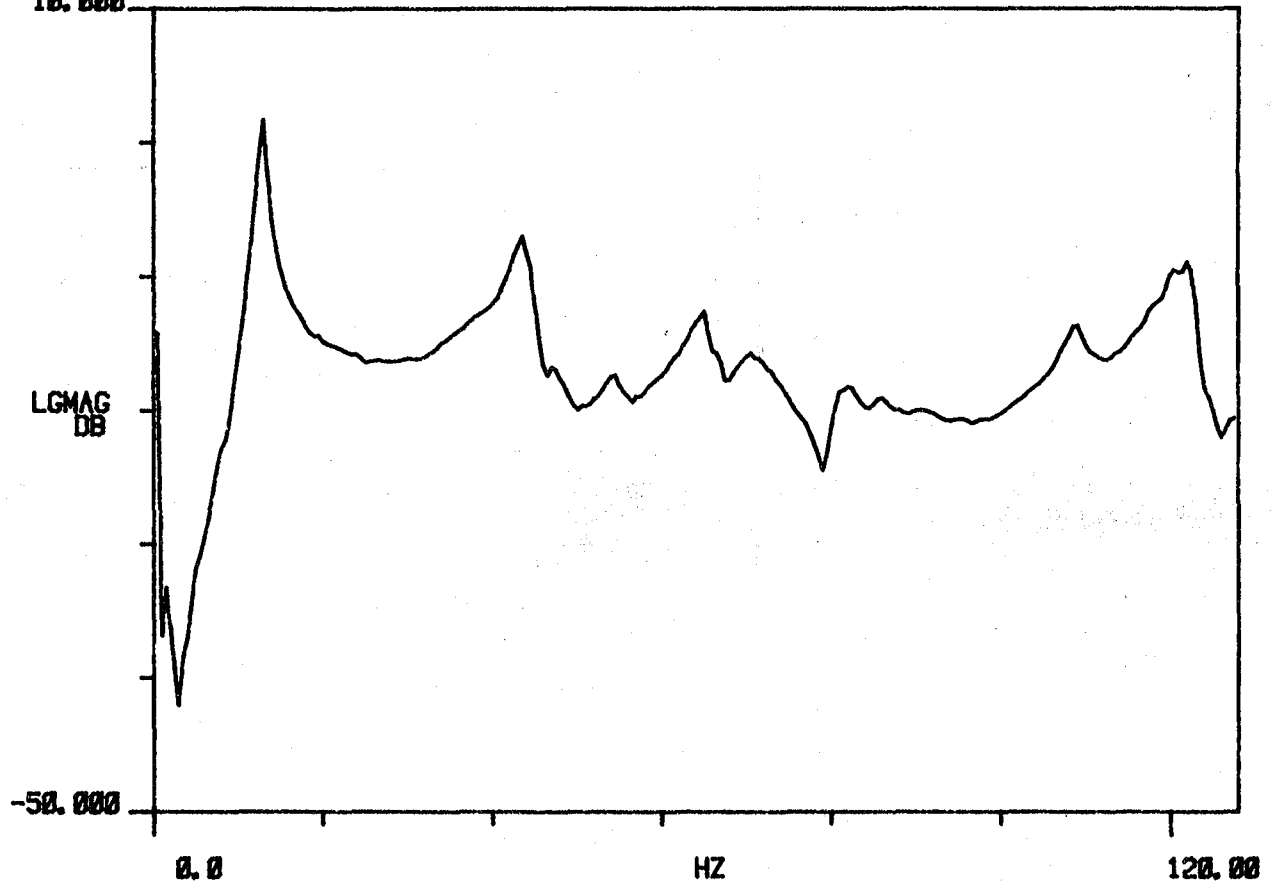
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.704	79.825	3.531	448.911	2.821
2	0.000	0.000	0.000	0.000	0.000
3	43.828	275.377	2.815	1.234	7.758
4	64.711	406.592	2.382	1.542	9.686
5	71.390	448.558	2.172	1.551	9.746
6	80.999	508.930	914.198	740.519	4.653
7	108.556	682.079	1.779	1.932	12.138
8	121.932	766.119	1.296	1.580	9.926

TRANS

R# 30

#A 325

10.000



FM1 BLADE 13. ACC. POS. #1. 01/82

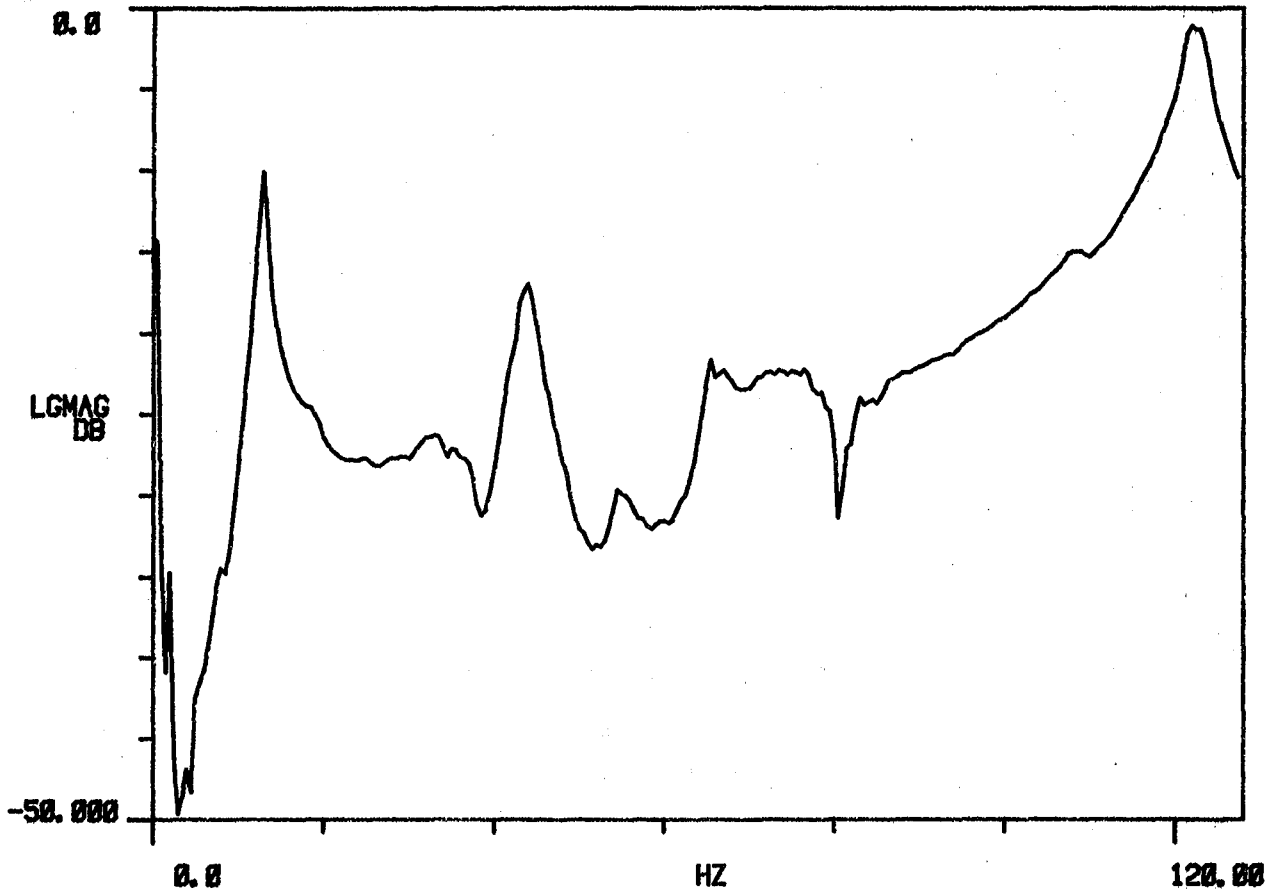
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.723	79.940	3.567	454.070	2.853
2	32.555	204.548	8.330	2.721	17.098
3	43.877	275.690	2.881	1.265	7.945
4	65.139	409.278	3.003	1.957	12.296
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	106.606	669.827	2.180	2.324	14.605
8	122.443	769.333	1.389	1.701	10.688

TRANS

R# 31

#A 325



FM1 BLADE 13. ACC. POS. #2. 01/82

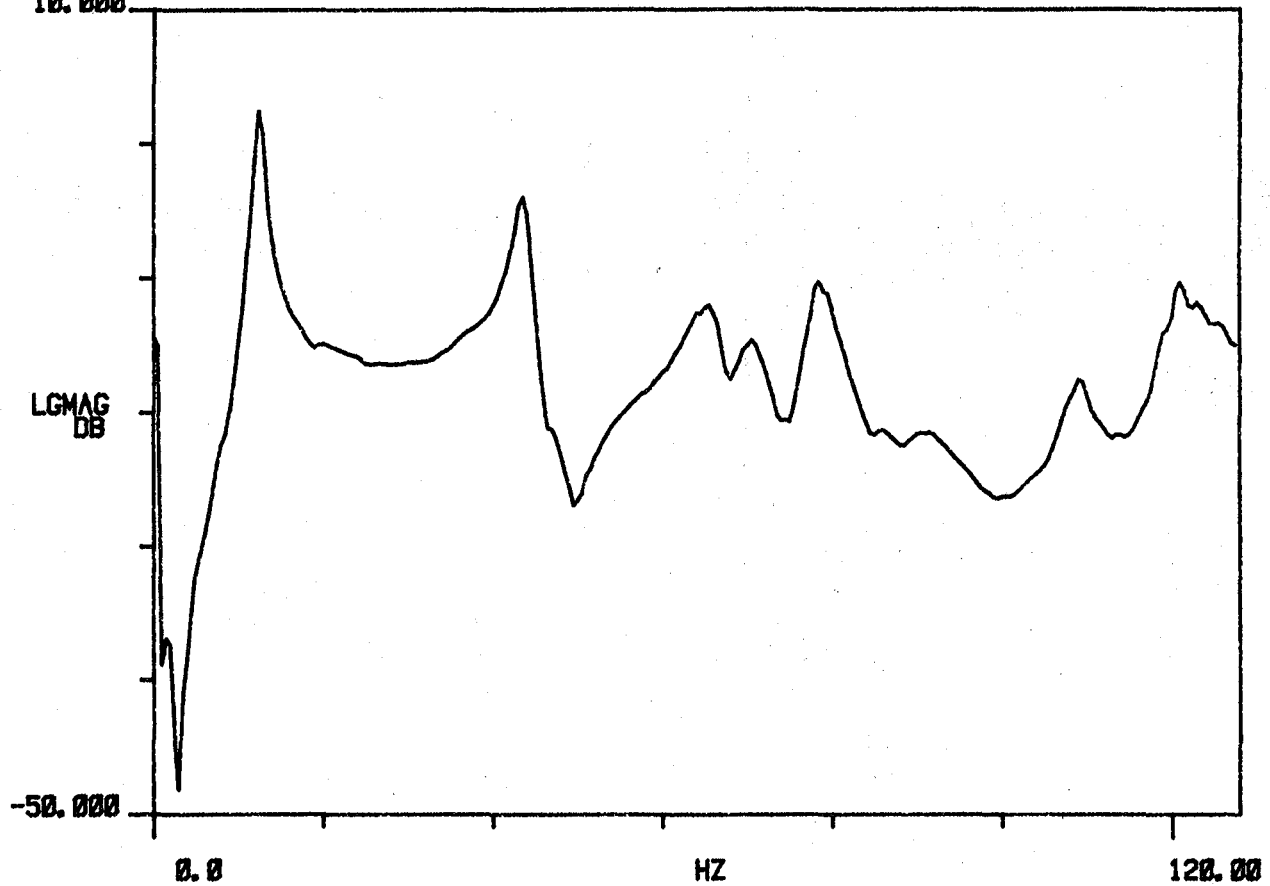
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.325	77.440	2.525	311.296	1.956
2	0.000	0.000	0.000	0.000	0.000
3	43.601	273.952	1.802	785.704	4.937
4	65.399	410.917	2.898	1.896	11.915
5	71.094	446.696	1.518	1.079	6.779
6	78.662	494.249	1.875	1.476	9.271
7	108.819	683.731	1.663	1.810	11.373
8	120.948	759.940	1.312	1.587	9.972

TRANS
10.000

R# 28

#A 325



FM1 BLADE 14. ACC. POS. #1. 01/82

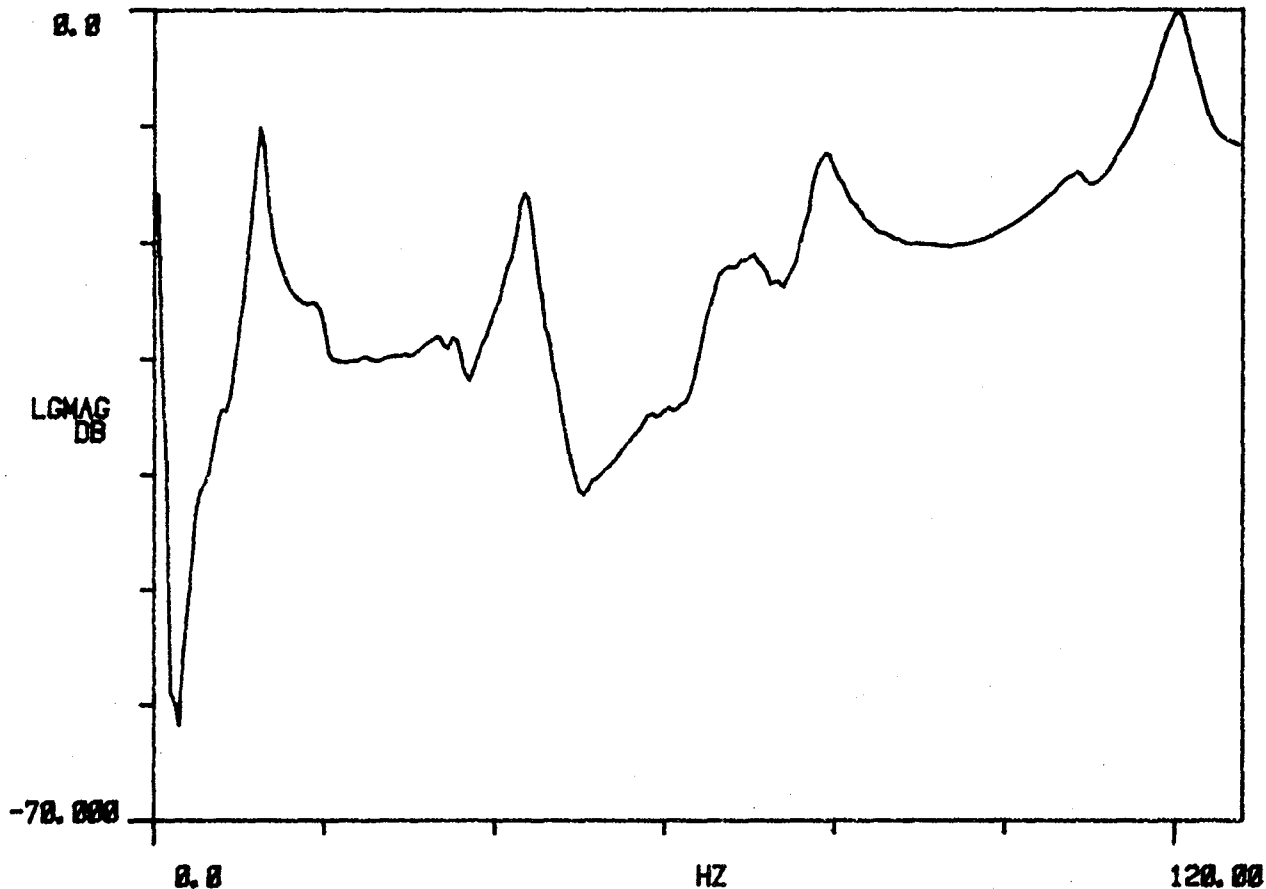
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.324	77.433	2.687	321.419	2.828
2	34.957	218.638	4.885	1.429	8.979
3	43.628	274.878	1.889	824.151	5.178
4	69.521	436.814	4.853	3.238	28.345
5	8.888	8.888	8.888	8.888	8.888
6	78.477	493.884	2.858	1.818	18.154
7	187.883	878.484	1.272	1.378	8.885
8	128.251	755.558	1.348	1.621	18.188

TRANS

R# 29

#A 325



FM1 BLADE 14. ACC. POS. #2. 01/82

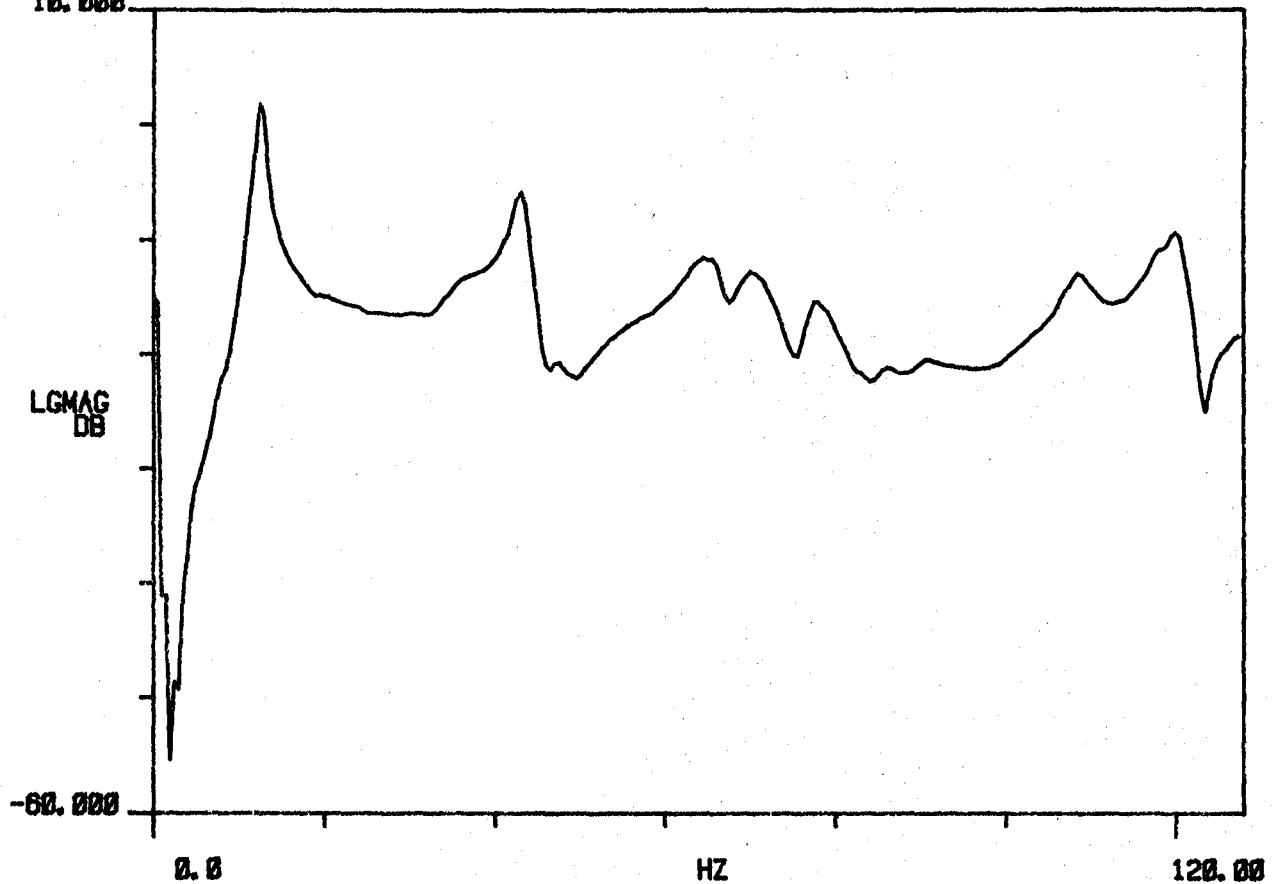
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.366	77.701	3.280	405.869	2.550
2	0.000	0.000	0.000	0.000	0.000
3	43.223	271.576	2.038	880.845	5.535
4	64.990	408.346	3.493	2.271	14.272
5	71.085	446.642	2.563	1.822	11.451
6	78.171	491.162	1.824	1.426	8.958
7	108.369	680.903	2.176	2.358	14.820
8	120.557	757.480	1.298	1.564	9.829

TRANS
10.000

R# 26

#A 325



FM1 BLADE 15. ACC. POS. #1. 01/82

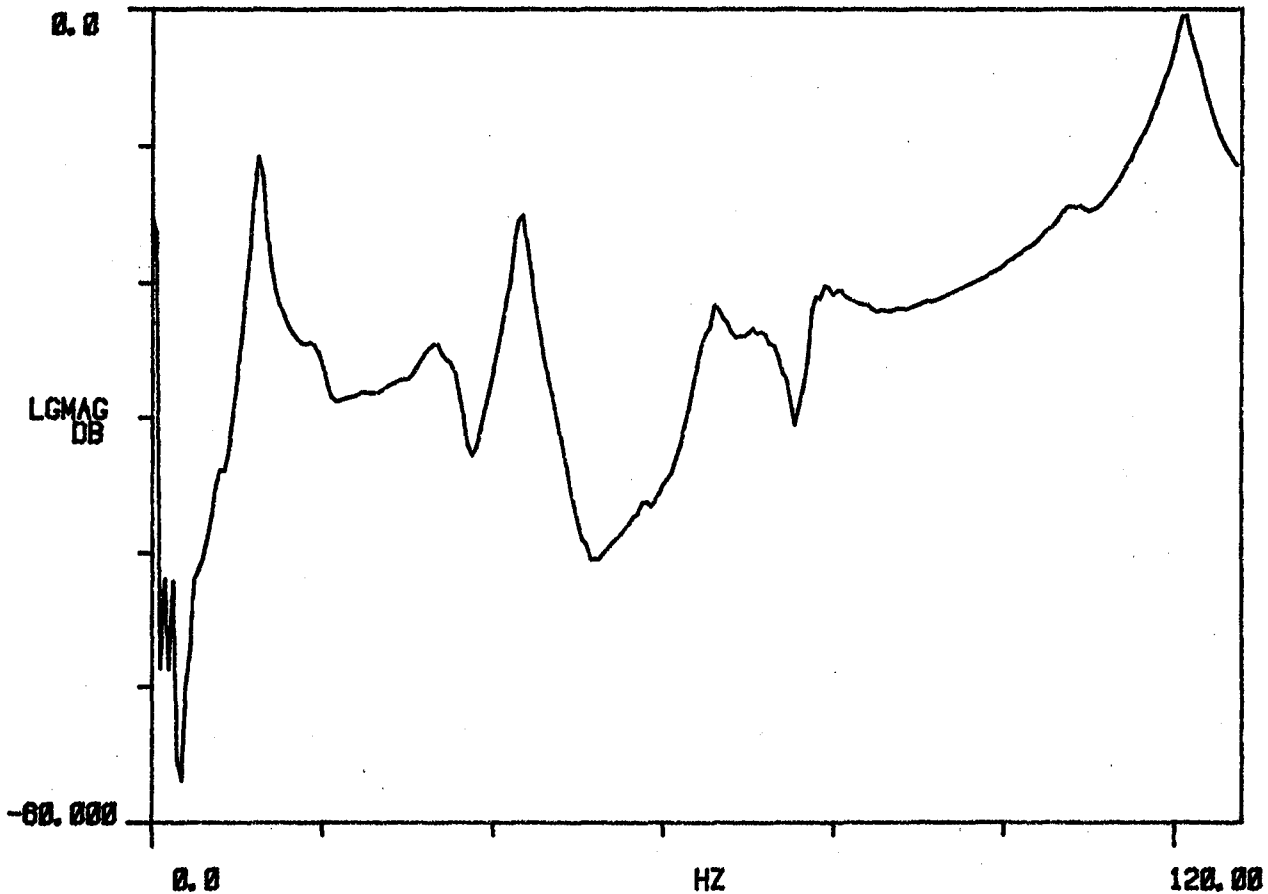
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	X	HZ	R/S
1	12.365	77.690	3.487	431.383	2.710
2	33.885	212.904	6.630	2.251	14.147
3	43.264	271.834	2.049	886.754	5.572
4	64.990	408.346	3.493	2.271	14.272
5	73.769	463.506	4.960	3.663	23.016
6	77.529	487.130	2.245	1.741	10.941
7	106.441	668.791	2.370	2.523	15.852
8	121.218	761.625	1.442	1.748	10.983

TRANS

R# 27

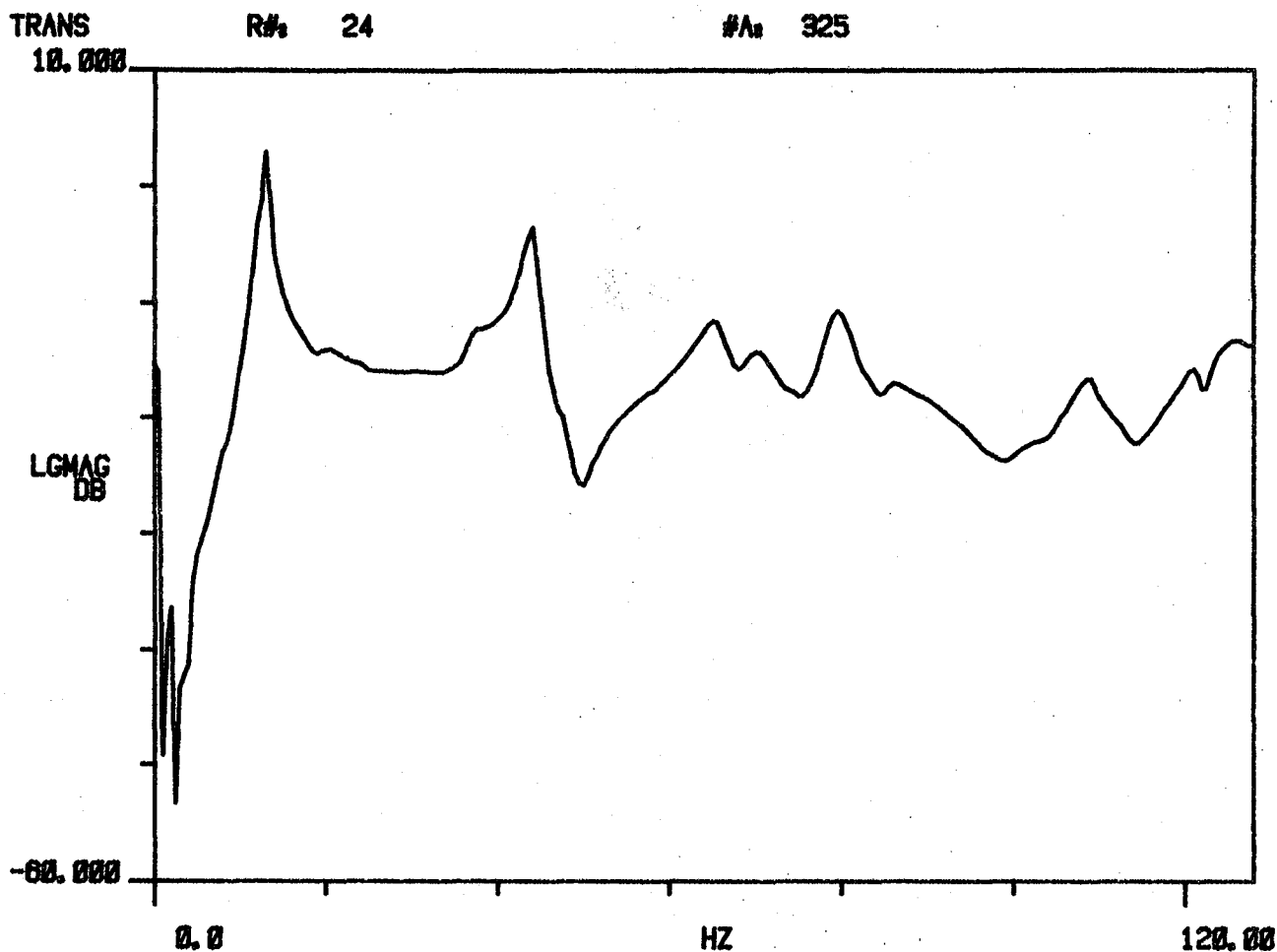
#A 325



FM1 BLADE 15. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.636	79.392	2.149	271.571	1.706
2	35.986	226.106	7.825	2.825	17.748
3	43.936	276.057	1.877	824.698	5.182
4	65.102	489.047	2.923	1.984	11.962
5	71.245	447.844	1.316	937.471	5.890
6	79.555	499.862	1.647	1.310	8.232
7	108.675	682.828	1.833	1.992	12.518
8	121.619	764.153	716.468	871.381	5.475



FM1 BLADE 16. ACC. POS. #1. 01/82

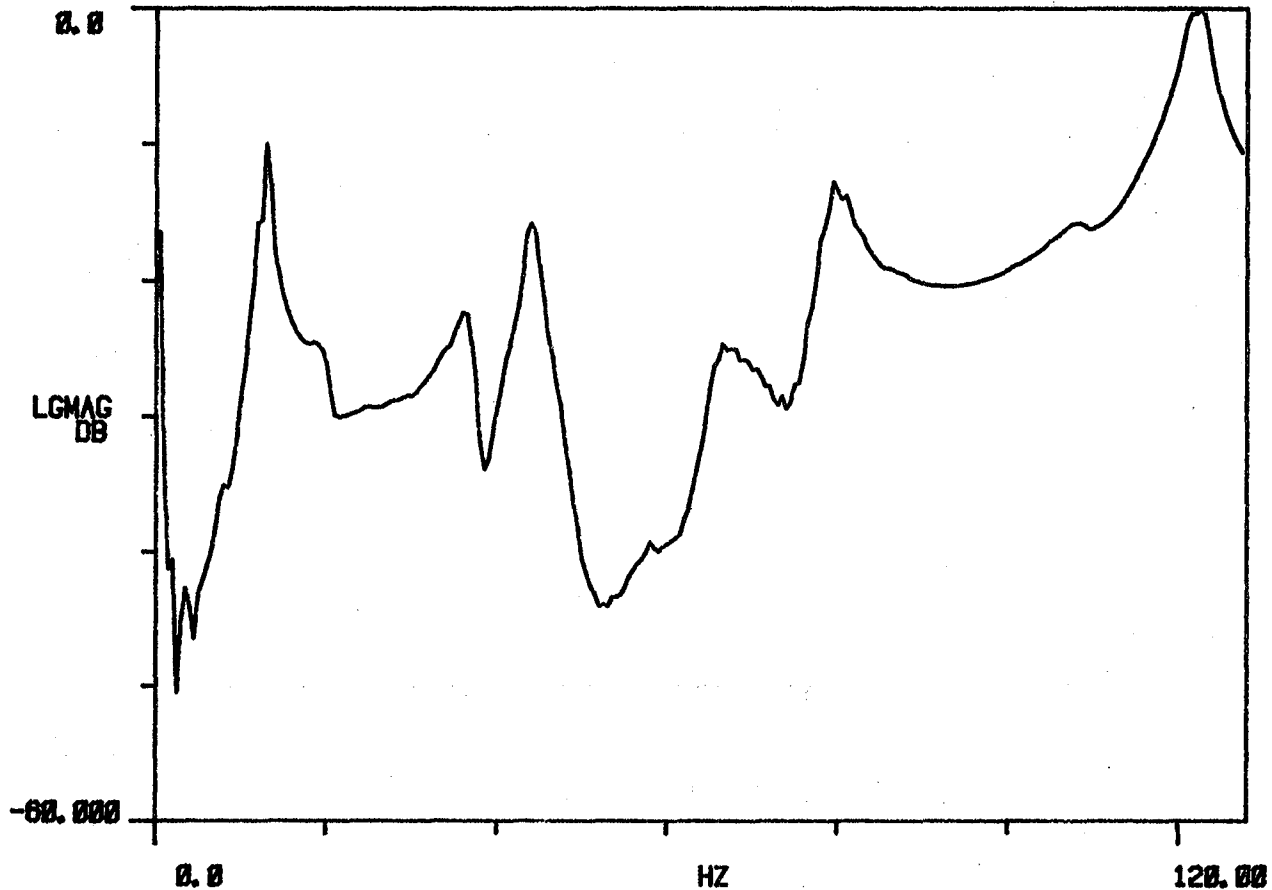
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.648	79.470	2.037	257.688	1.619
2	36.641	230.221	3.272	1.199	7.536
3	44.076	276.936	1.938	854.477	5.369
4	66.261	416.333	3.557	2.358	14.817
5	0.000	0.000	0.000	0.000	0.000
6	79.444	499.158	2.052	1.631	10.246
7	106.722	670.557	1.107	1.182	7.424
8	122.120	767.304	1.241	1.515	9.521

TRANS

R# 25

#A 325



FM1 BLADE 16. ACC. POS. #2. 01/82

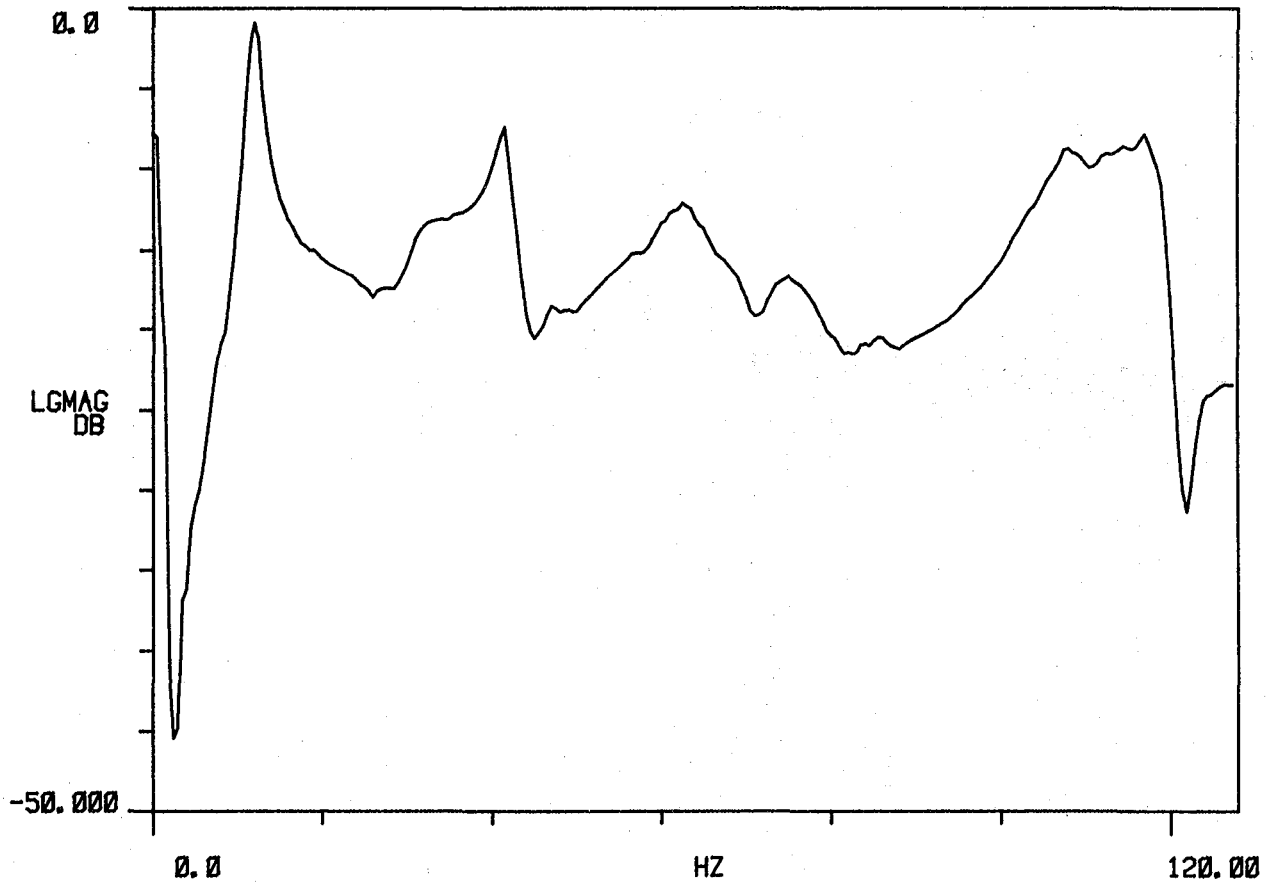
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.797	74.122	4.576	540.375	3.395
2	30.315	190.477	10.292	3.137	19.709
3	41.686	261.921	2.487	1.037	6.515
4	62.615	393.419	5.305	3.326	20.899
5	0.000	0.000	0.000	0.000	0.000
6	75.704	475.662	2.255	1.708	10.731
7	107.913	678.037	3.146	3.396	21.339
8	118.428	744.103	2.155	2.553	16.039

TRANS

R# 7

#A 325



FM4 BLADE 17. ACC. POS. #1. 11/81

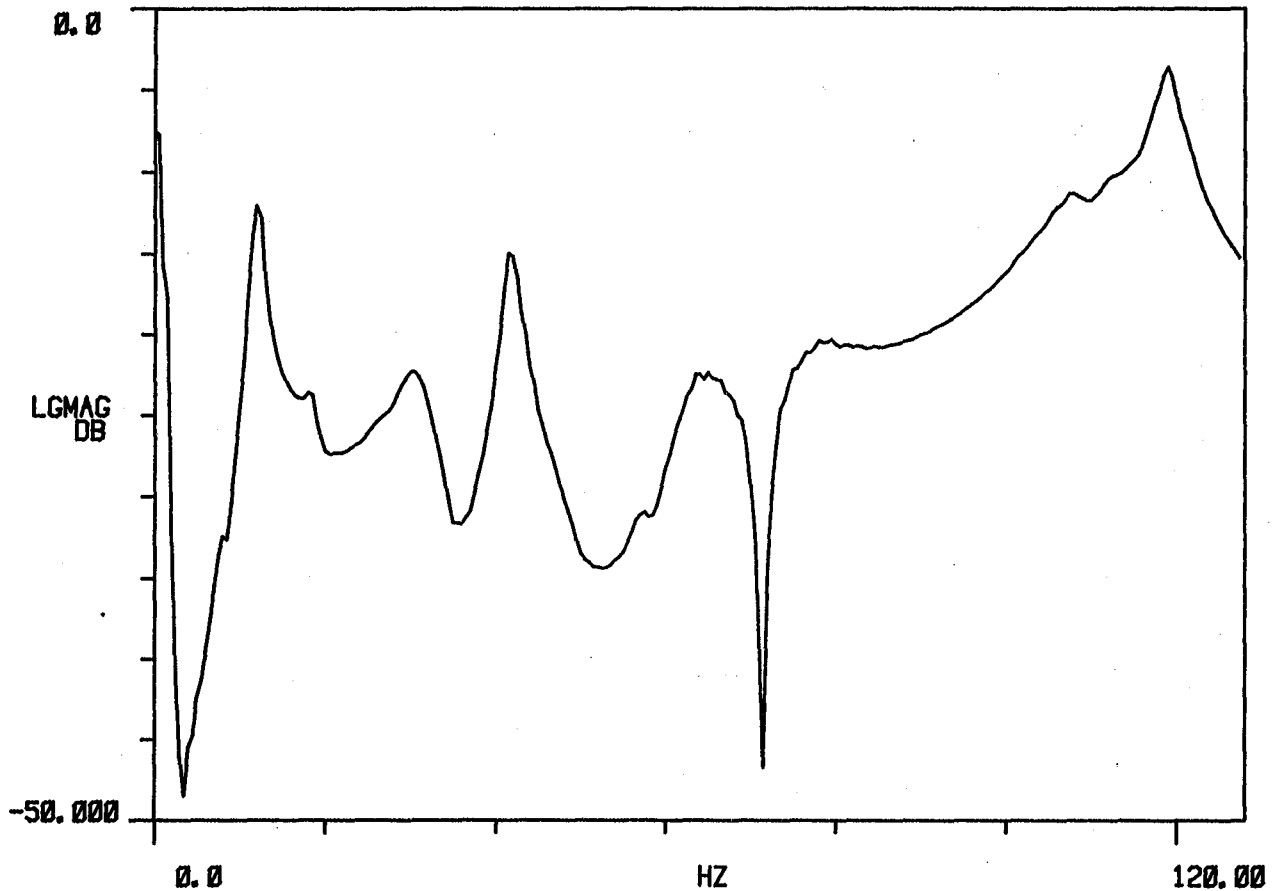
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.810	74.207	4.336	512.581	3.221
2	30.845	193.805	7.338	2.270	14.261
3	41.719	262.128	2.249	938.349	5.896
4	64.469	405.071	5.751	3.714	23.335
5	0.000	0.000	0.000	0.000	0.000
6	74.143	465.854	6.207	4.611	28.971
7	106.327	668.071	3.333	3.545	22.277
8	118.862	746.830	1.593	1.894	11.901

TRANS

R# 8

#A 325



FM4 BLADE 17. ACC. POS. #2. 11/81

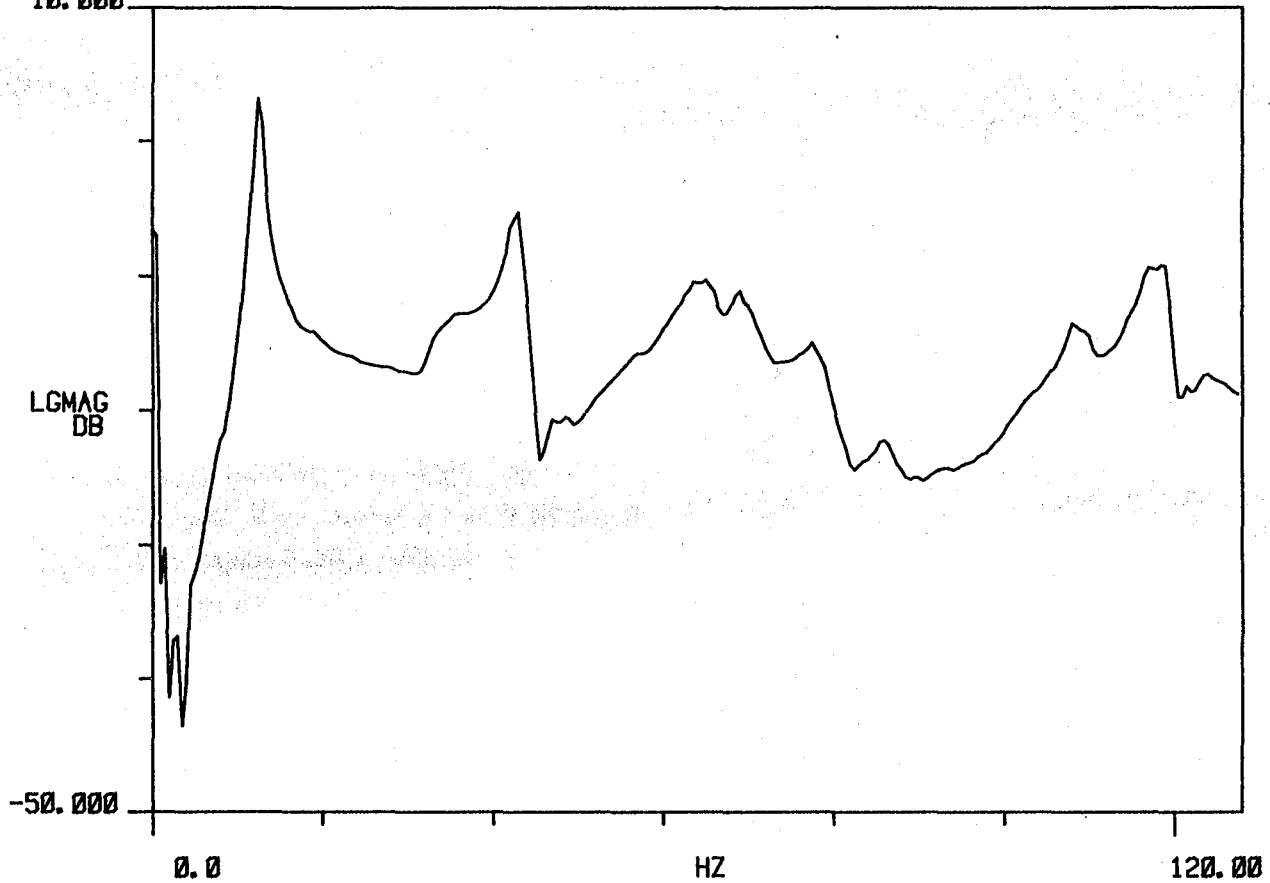
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.334	77.498	2.670	329.488	2.070
2	32.932	206.921	10.613	3.515	22.085
3	42.946	269.837	1.961	842.486	5.293
4	64.415	404.731	4.131	2.663	16.734
5	69.757	438.295	2.646	1.846	11.600
6	79.040	496.621	2.477	1.958	12.304
7	108.591	682.297	1.784	1.938	12.176
8	118.577	745.043	1.257	1.490	9.364

TRANS
10.000

R# 9

#A 325



FM4 BLADE 18. ACC. POS. #1. 11/81

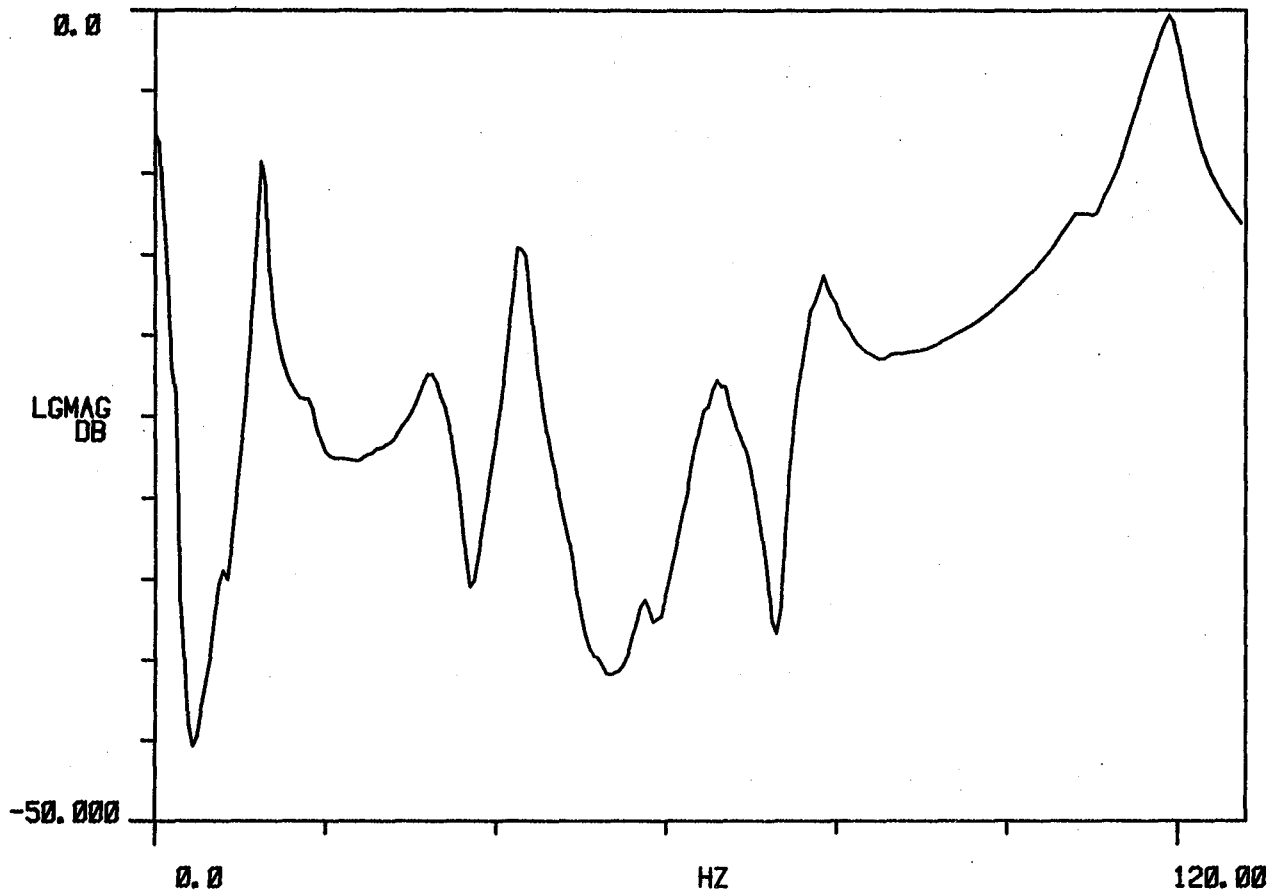
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.351	77.601	2.727	336.907	2.117
2	32.859	206.462	6.357	2.093	13.151
3	42.883	269.441	1.949	836.063	5.253
4	65.805	413.466	3.264	2.149	13.504
5	0.000	0.000	0.000	0.000	0.000
6	77.712	488.279	2.528	1.965	12.348
7	106.042	666.283	1.894	2.009	12.621
8	118.901	747.079	1.647	1.959	12.306

TRANS

R# 10

#A 325



FM4 BLADE 18. ACC. POS. #2. 11/81

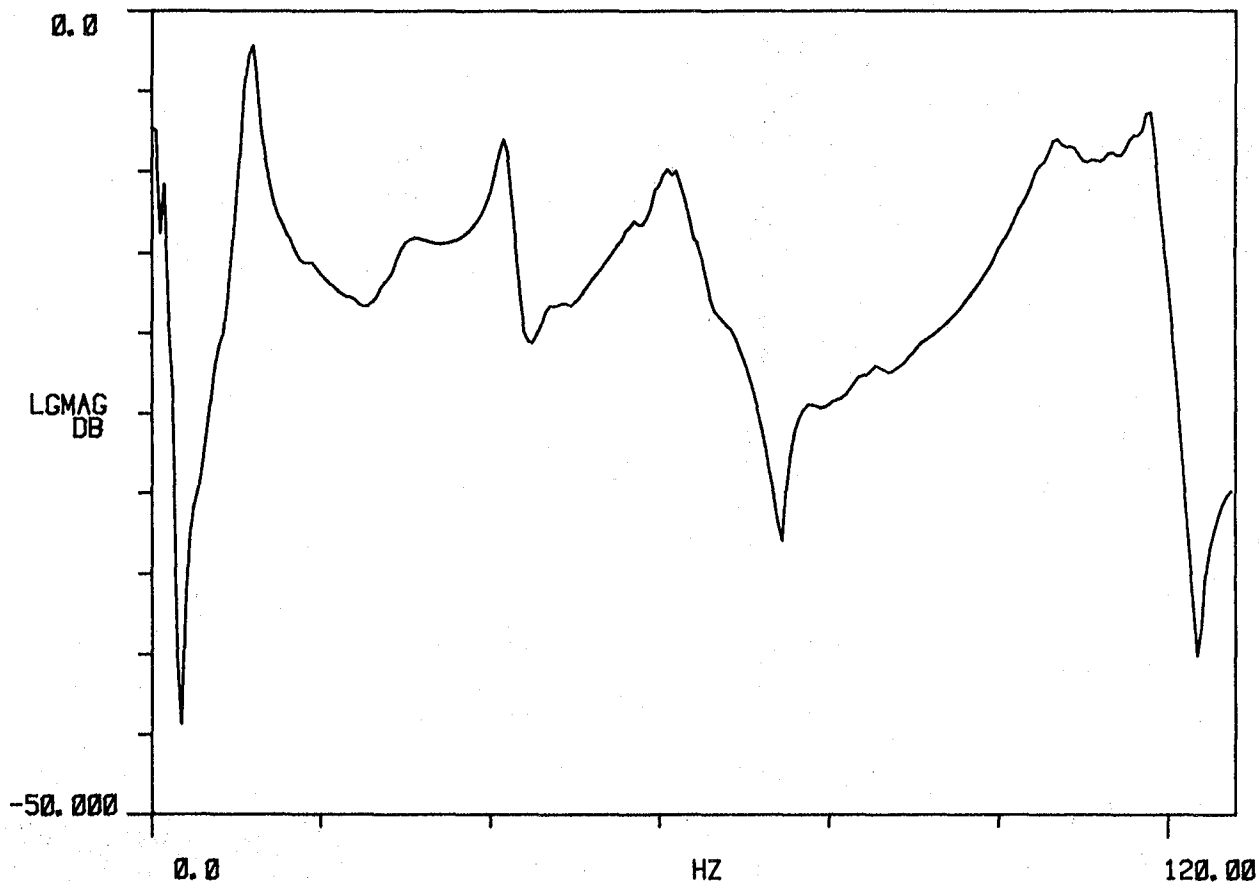
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.484	72.154	4.964	570.702	3.586
2	28.944	181.858	9.747	2.835	17.810
3	41.868	263.061	2.151	900.717	5.659
4	61.594	387.005	3.627	2.236	14.046
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	106.761	670.800	3.807	4.067	25.553
8	117.985	741.321	1.365	1.611	10.121

TRANS

R# 5

#A 325



FM4 BLADE 19. ACC. POS. #1. 11/81

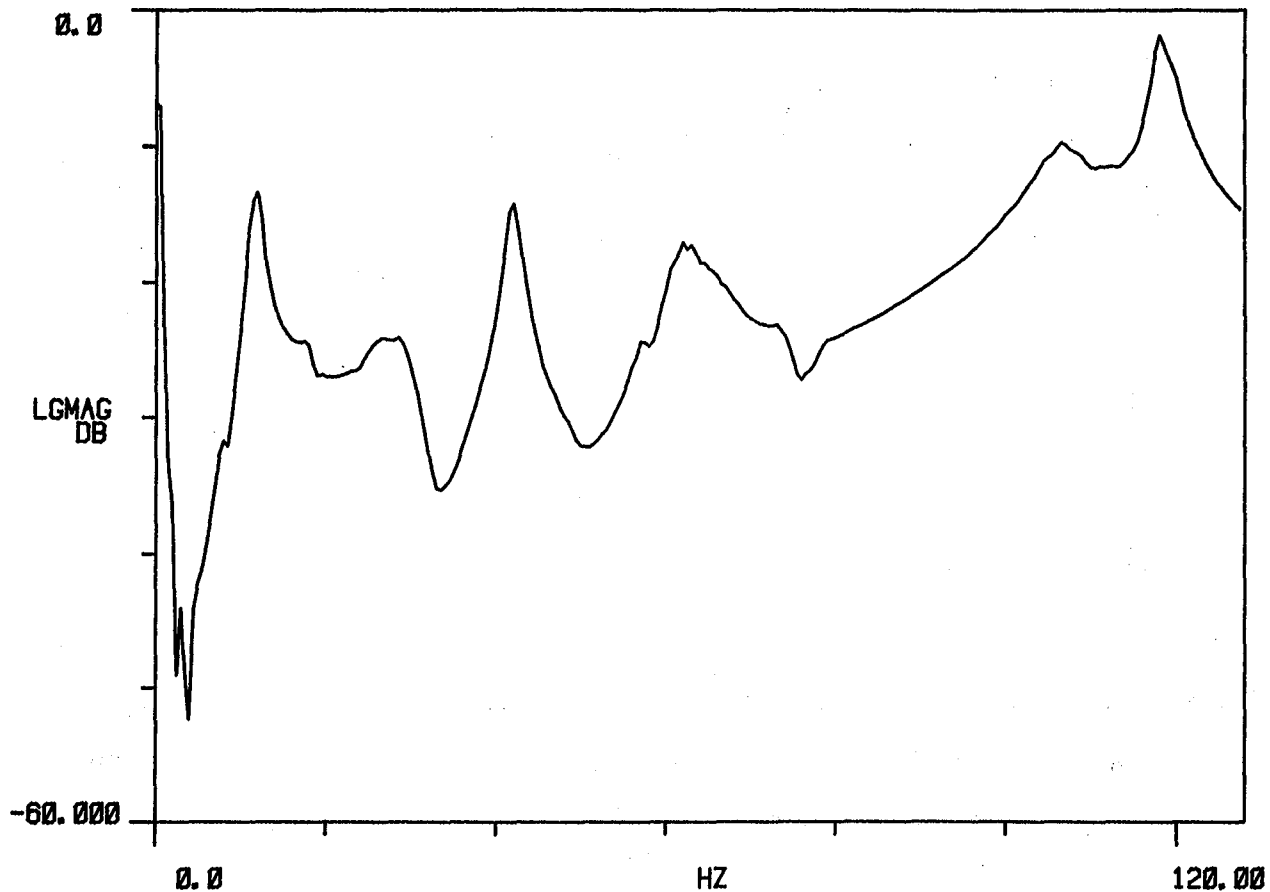
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.461	72.013	4.955	568.599	3.573
2	28.761	180.713	10.048	2.905	18.250
3	41.872	263.087	2.012	842.667	5.295
4	61.515	386.513	4.426	2.725	17.124
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.964	665.794	3.246	3.442	21.625
8	118.346	743.591	1.193	1.412	8.870

TRANS

R# 6

#A 325



FM4 BLADE 19. ACC. POS. #2. 11/81

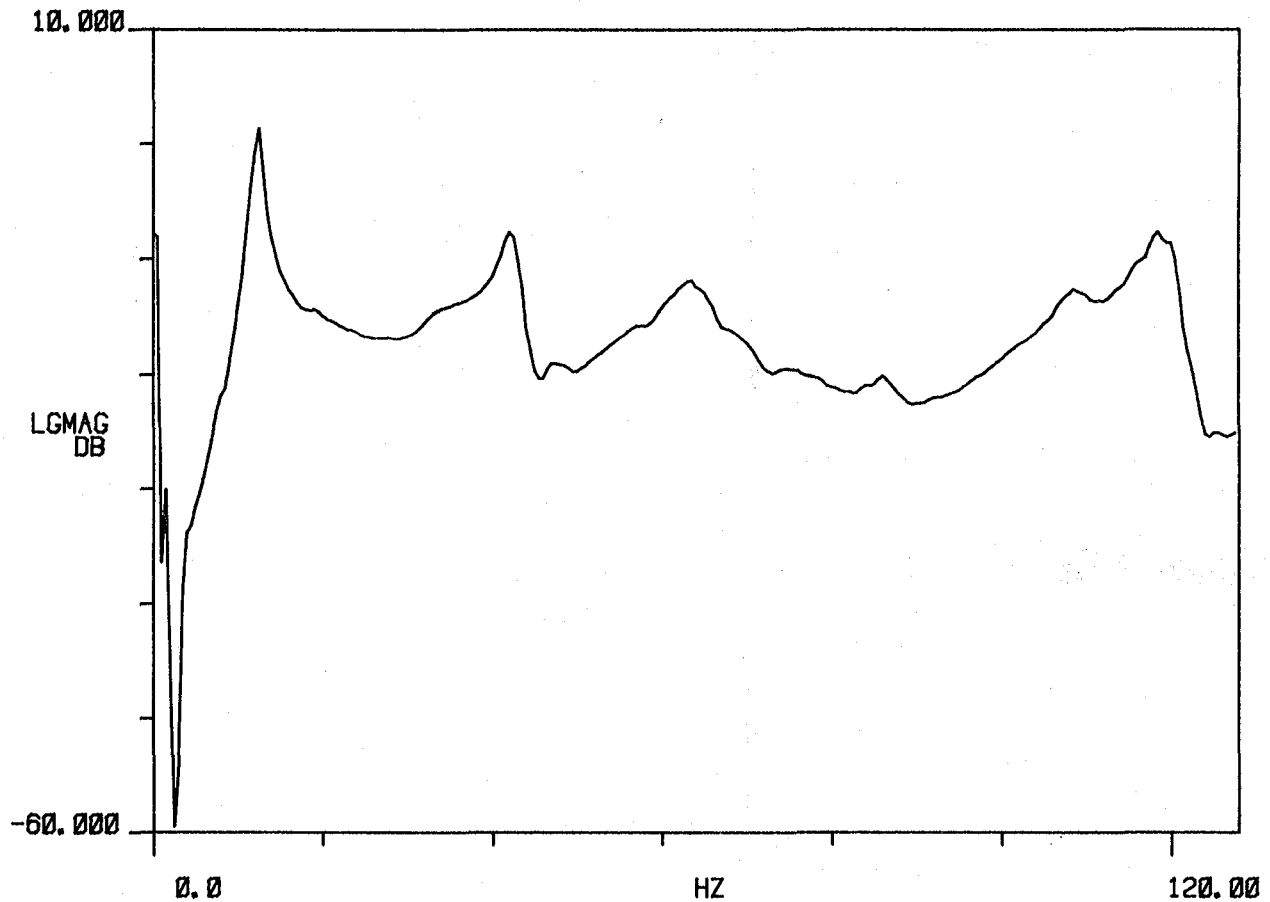
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.138	76.267	3.617	439.388	2.761
2	0.000	0.000	0.000	0.000	0.000
3	42.448	266.711	2.519	1.070	6.721
4	63.679	400.106	4.797	3.058	19.216
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	108.097	679.191	3.313	3.583	22.513
8	119.413	750.292	1.450	1.732	10.882

TRANS

R# 3

#A 325



FM4 BLADE 20. ACC. POS. #1. 11/81

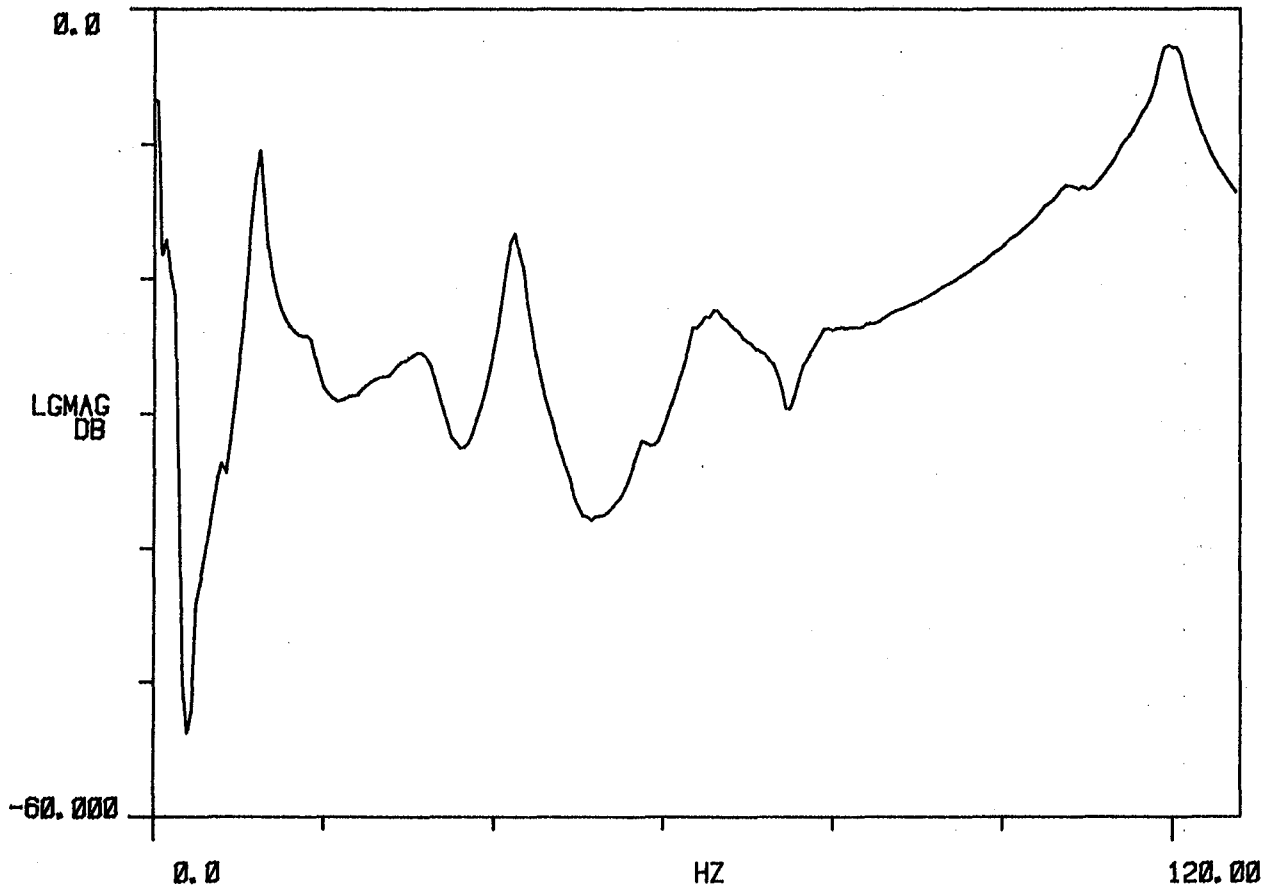
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.128	76.204	3.590	435.659	2.737
2	32.146	201.976	7.784	2.510	15.770
3	42.409	266.466	2.342	993.659	6.243
4	64.721	406.653	5.268	3.415	21.454
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.813	664.841	3.052	3.231	20.298
8	119.963	753.747	1.571	1.884	11.840

TRANS

R#: 4

#A: 325



FM4 BLADE 20, ACC. POS. #2, 11/81

FREQUENCY AND DAMPING

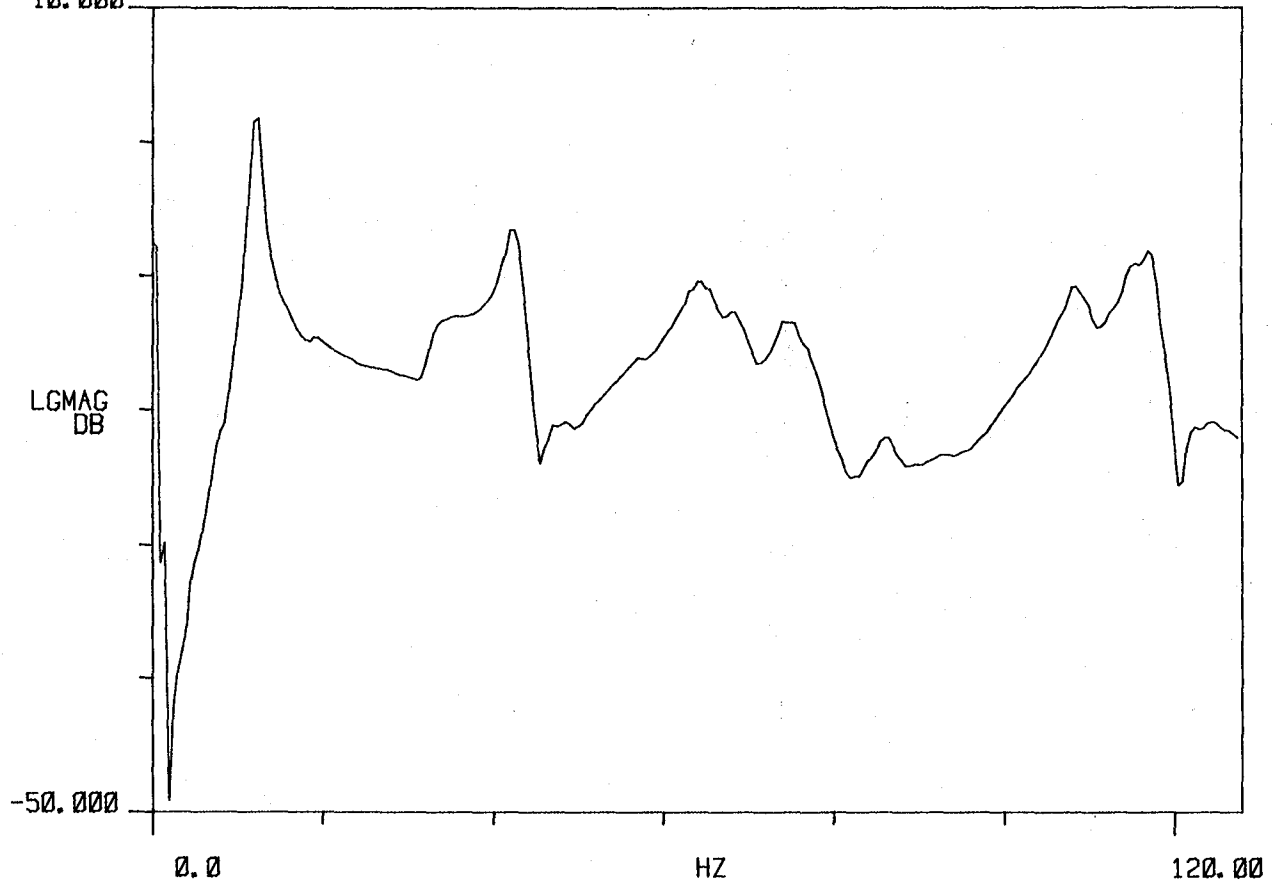
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.003	75.416	3.143	377.492	2.372
2	32.412	203.650	7.062	2.295	14.417
3	42.707	268.337	2.139	913.634	5.741
4	64.185	403.284	3.528	2.266	14.238
5	0.000	0.000	0.000	0.000	0.000
6	75.541	474.641	3.011	2.276	14.298
7	108.636	682.578	2.023	2.198	13.808
8	117.361	737.399	1.449	1.701	10.685

TRANS

R#: 1

#A: 325

10.000



FM4 BLADE 21. ACC. POS. #1. 11/81

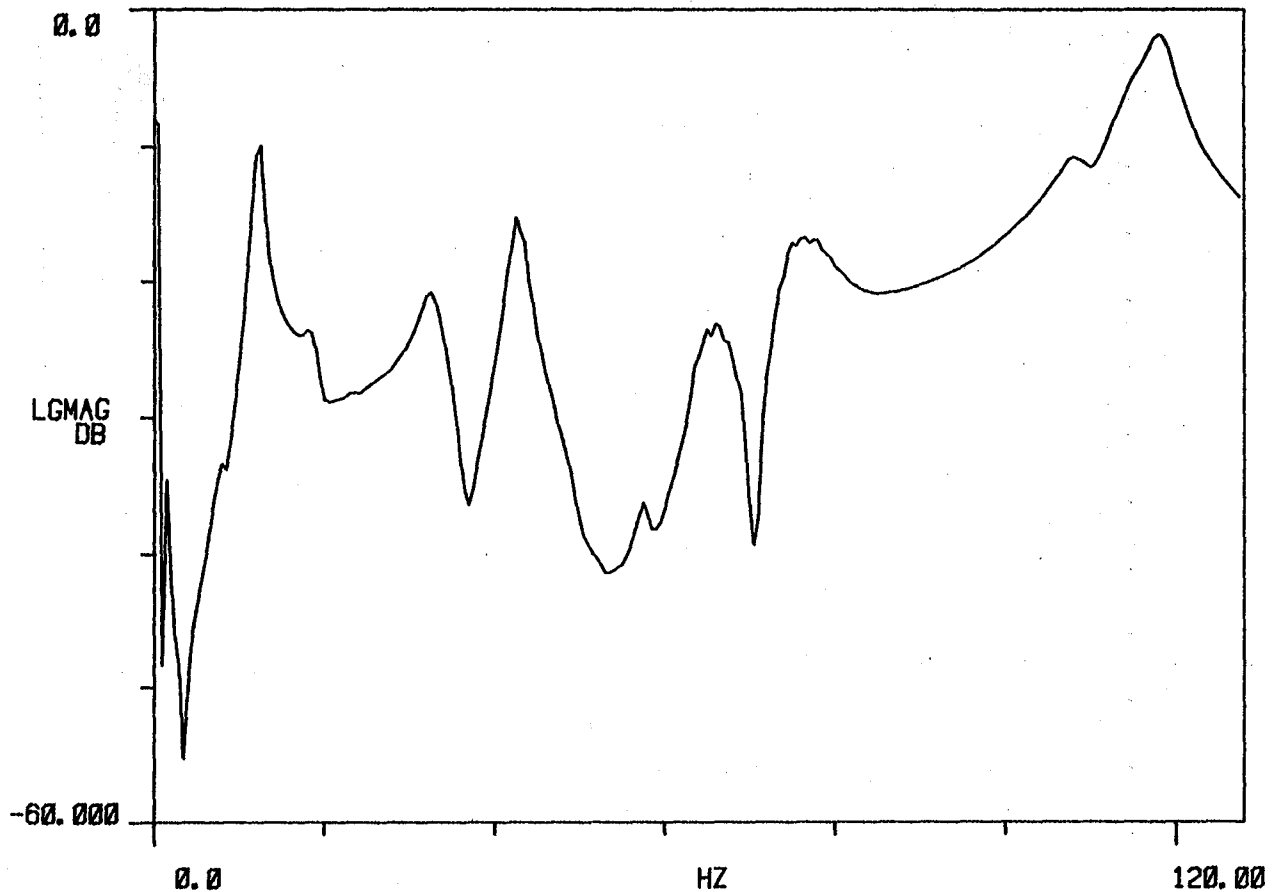
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.004	75.426	3.105	372.928	2.343
2	32.822	206.224	4.729	1.554	9.764
3	42.647	267.961	2.124	905.878	5.692
4	65.838	413.671	3.221	2.122	13.332
5	0.000	0.000	0.000	0.000	0.000
6	75.051	471.558	3.856	2.896	18.196
7	106.695	670.384	1.782	1.902	11.949
8	118.033	741.623	2.080	2.455	15.426

TRANS

R# 2

#A 325



FM4 BLADE 21. ACC. POS. #2, 11/81

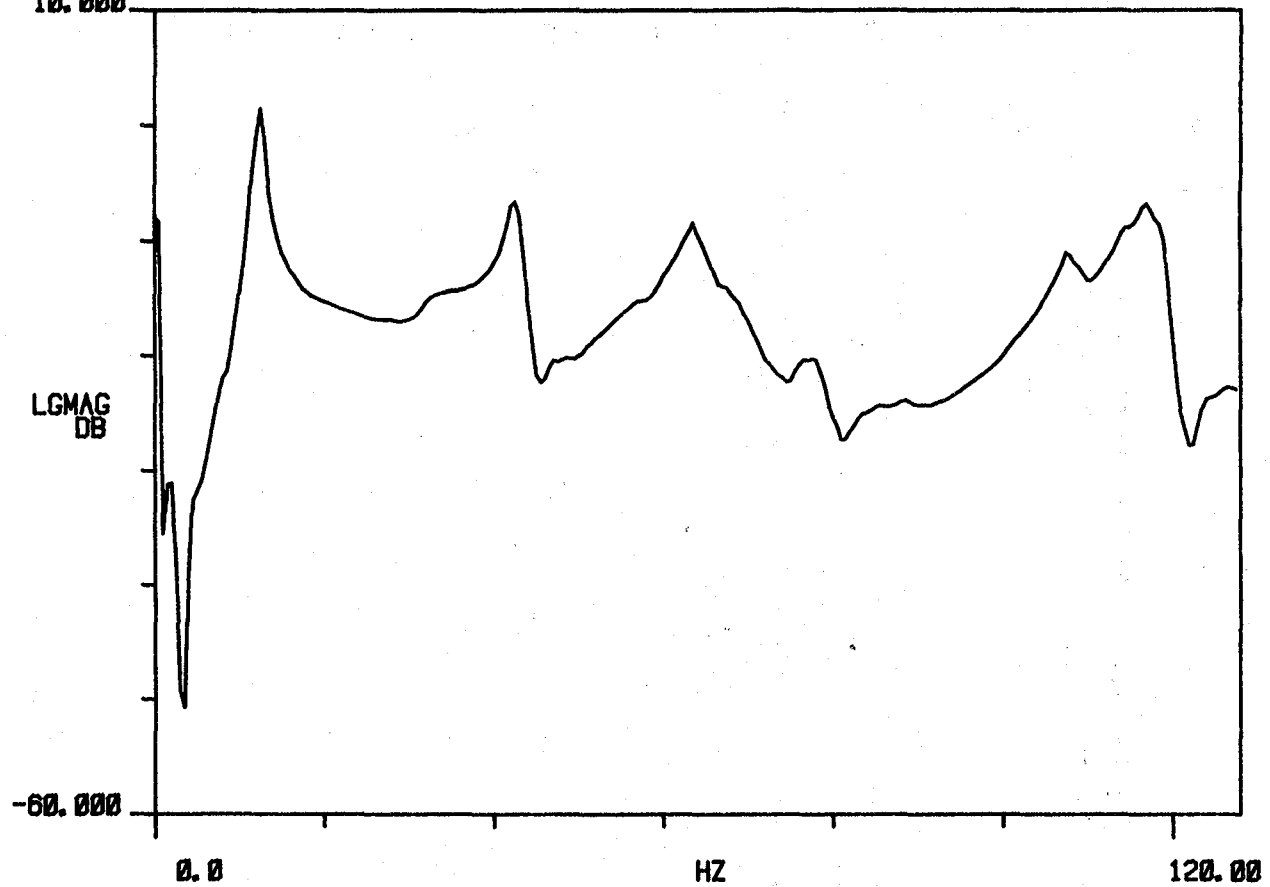
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.216	76.756	3.480	425.343	2.673
2	31.719	199.298	9.863	3.144	19.752
3	42.662	268.050	1.844	786.794	4.944
4	63.604	399.638	3.054	1.943	12.209
5	0.000	0.000	0.000	0.000	0.000
6	78.390	492.542	1.213	950.649	5.973
7	107.545	675.725	2.098	2.257	14.178
8	117.893	740.745	1.525	1.798	11.297

TRANS
10.000

R# 23

#A 325



FM4 BLADE 26. ACC. POS. #1. 11/81

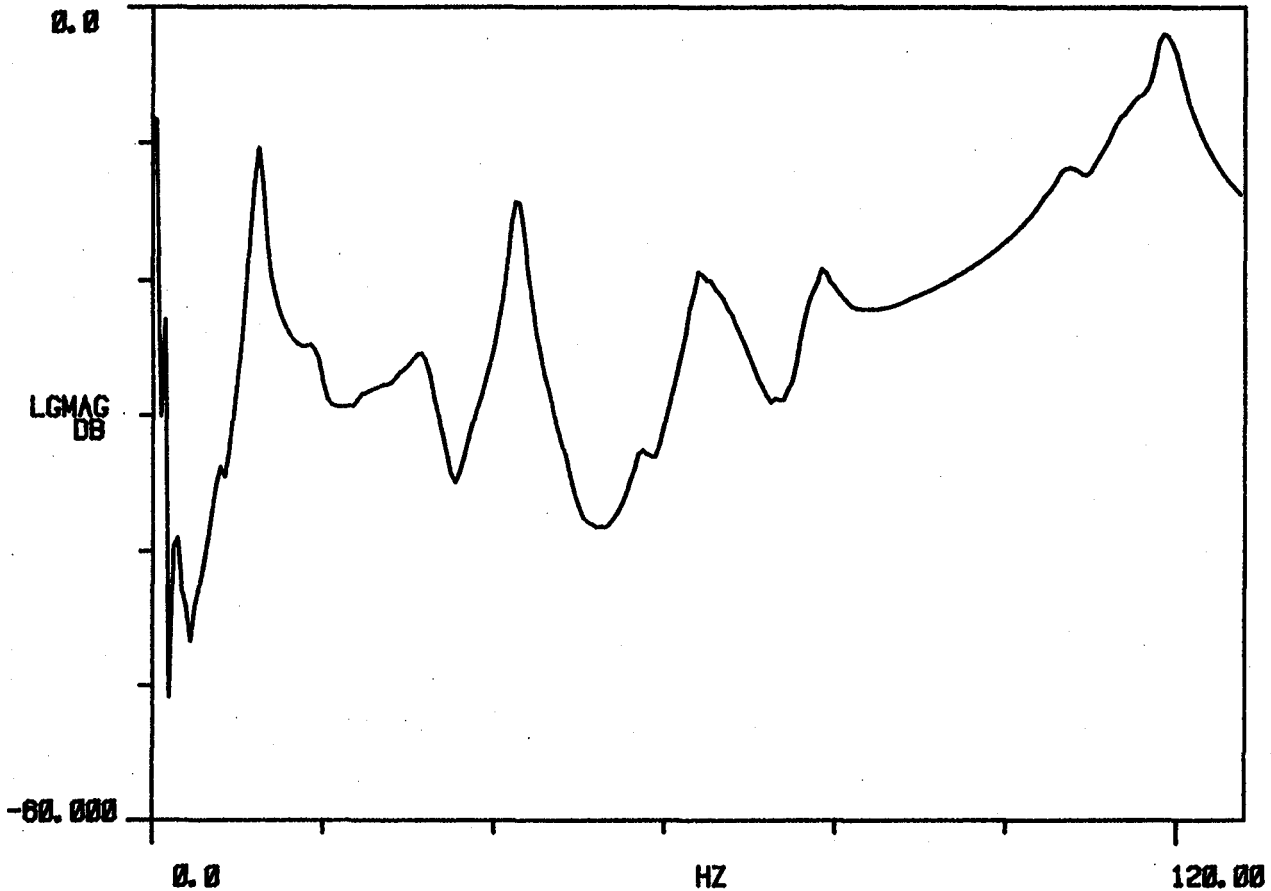
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.229	76.838	3.397	415.658	2.612
2	32.058	201.424	5.558	1.784	11.208
3	42.680	268.168	1.760	751.418	4.721
4	64.336	404.236	3.367	2.167	13.617
5	0.000	0.000	0.000	0.000	0.000
6	77.746	488.494	2.537	1.973	12.397
7	106.161	667.028	2.885	3.064	19.253
8	118.822	746.581	1.402	1.667	10.472

TRANS

R# 24

#A 325



FM4 BLADE 26. ACC. POS. #2. 11/81

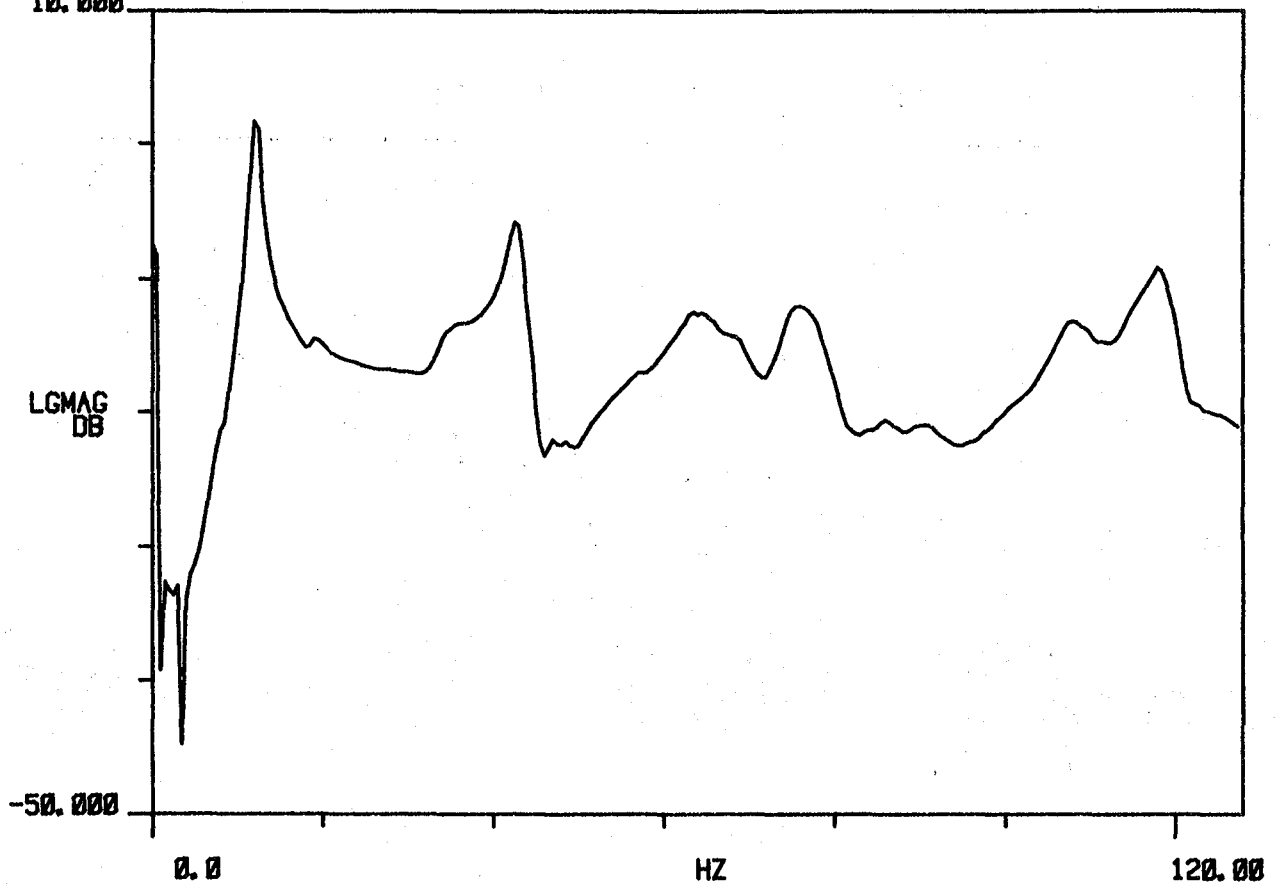
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.920	74.895	3.105	370.347	2.327
2	32.992	207.294	8.218	2.721	17.094
3	42.872	269.371	2.038	874.008	5.492
4	63.726	400.402	5.145	3.283	20.629
5	0.000	0.000	0.000	0.000	0.000
6	76.584	481.193	3.150	2.414	15.165
7	107.574	675.908	2.820	3.035	19.067
8	118.868	746.870	1.258	1.496	9.399

TRANS
10.000

R# 27

#A 325



FM4 BLADE 22. ACC. POS. #1. 11/81

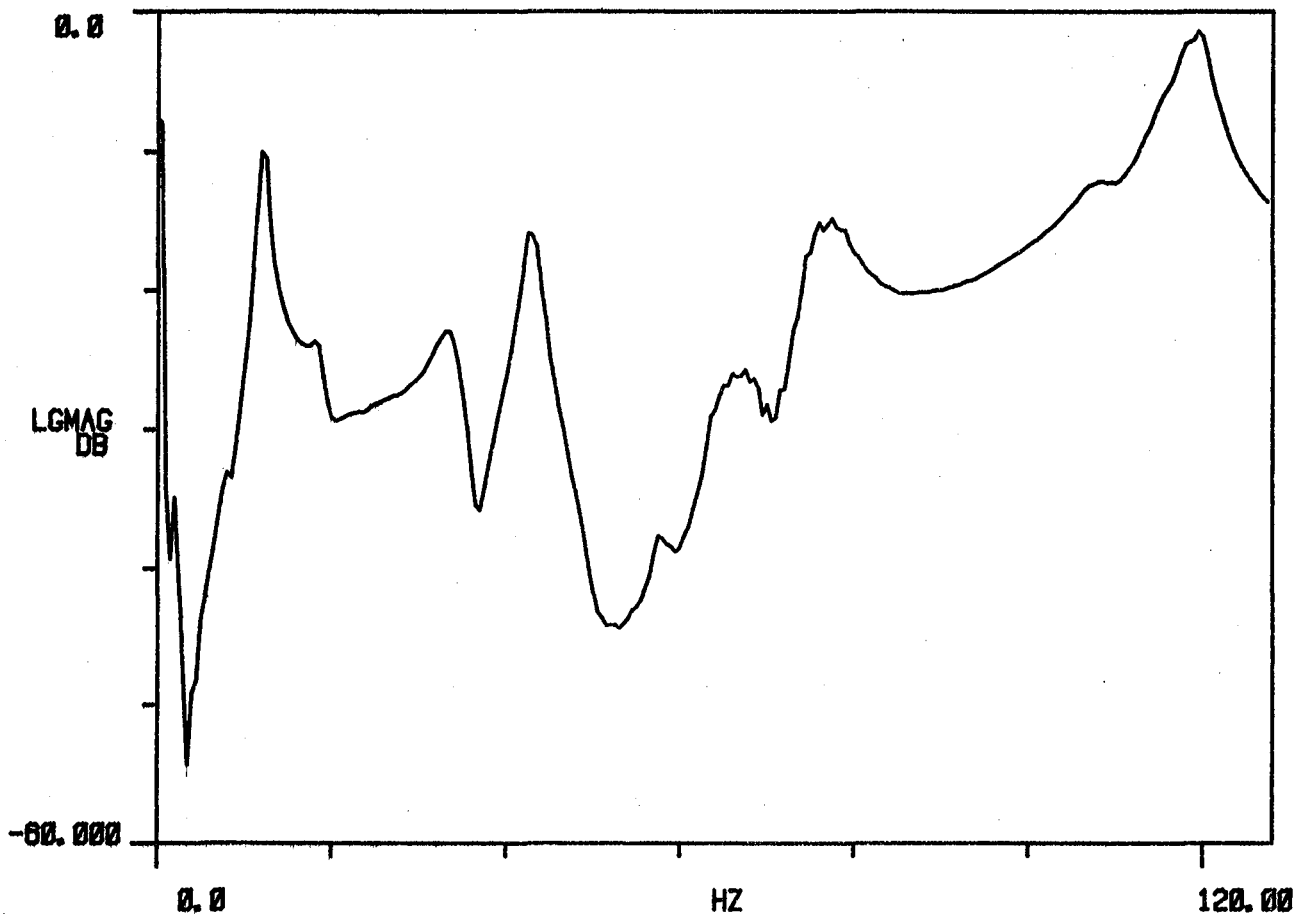
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.918	74.882	3.049	363.494	2.284
2	33.747	212.038	4.693	1.585	9.961
3	42.853	269.255	1.978	847.713	5.326
4	67.314	422.947	3.690	2.485	15.616
5	0.000	0.000	0.000	0.000	0.000
6	76.050	477.839	3.231	2.458	15.446
7	105.587	663.423	3.400	3.592	22.568
8	119.188	748.878	1.823	2.173	13.855

TRANS

R# 28

#A 325



FM4 BLADE 22. ACC. POS. #2. 11/81

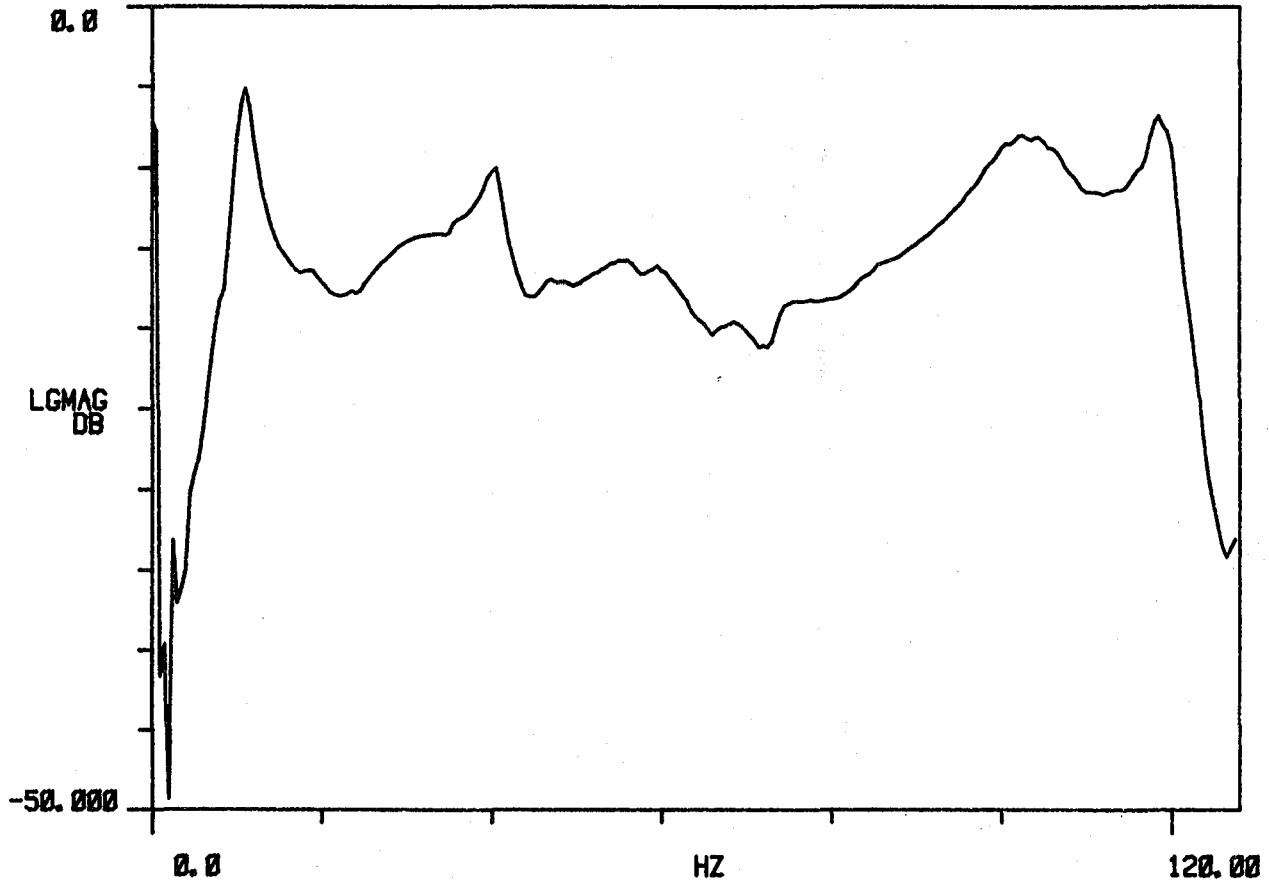
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.591	66.548	7.645	812.080	5.102
2	27.255	171.246	24.339	6.839	42.971
3	40.699	255.722	3.678	1.498	9.413
4	61.950	389.245	4.807	2.981	18.733
5	70.305	441.740	-1.274	-895.955	-5.629
6	73.215	460.023	938.682	687.286	4.318
7	102.896	646.513	6.062	6.249	39.265
8	119.197	748.939	1.315	1.568	9.851

TRANS

R#: 29

#A: 325



FM4 BLADE 23. ACC. POS. #1. 11/81

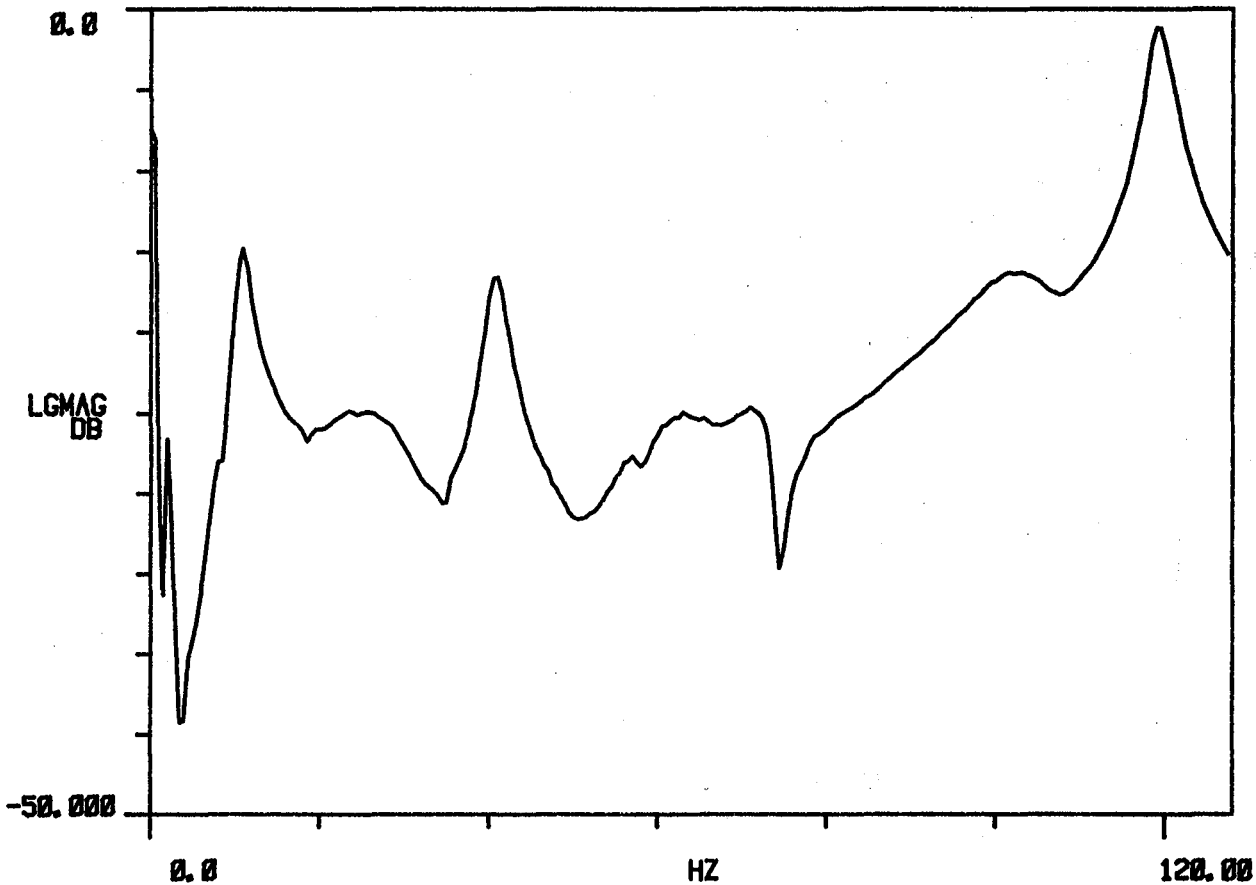
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.564	66.377	7.859	832.794	5.233
2	26.605	167.167	23.583	6.457	40.568
3	40.798	256.344	3.086	1.260	7.915
4	60.152	377.947	9.390	5.673	35.645
5	73.098	459.291	2.717	1.987	12.483
6	0.000	0.000	0.000	0.000	0.000
7	100.457	631.188	5.938	5.976	37.545
8	119.275	749.425	1.194	1.424	8.947

TRANS

R# 30

#A 325



FM4 BLADE 23. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

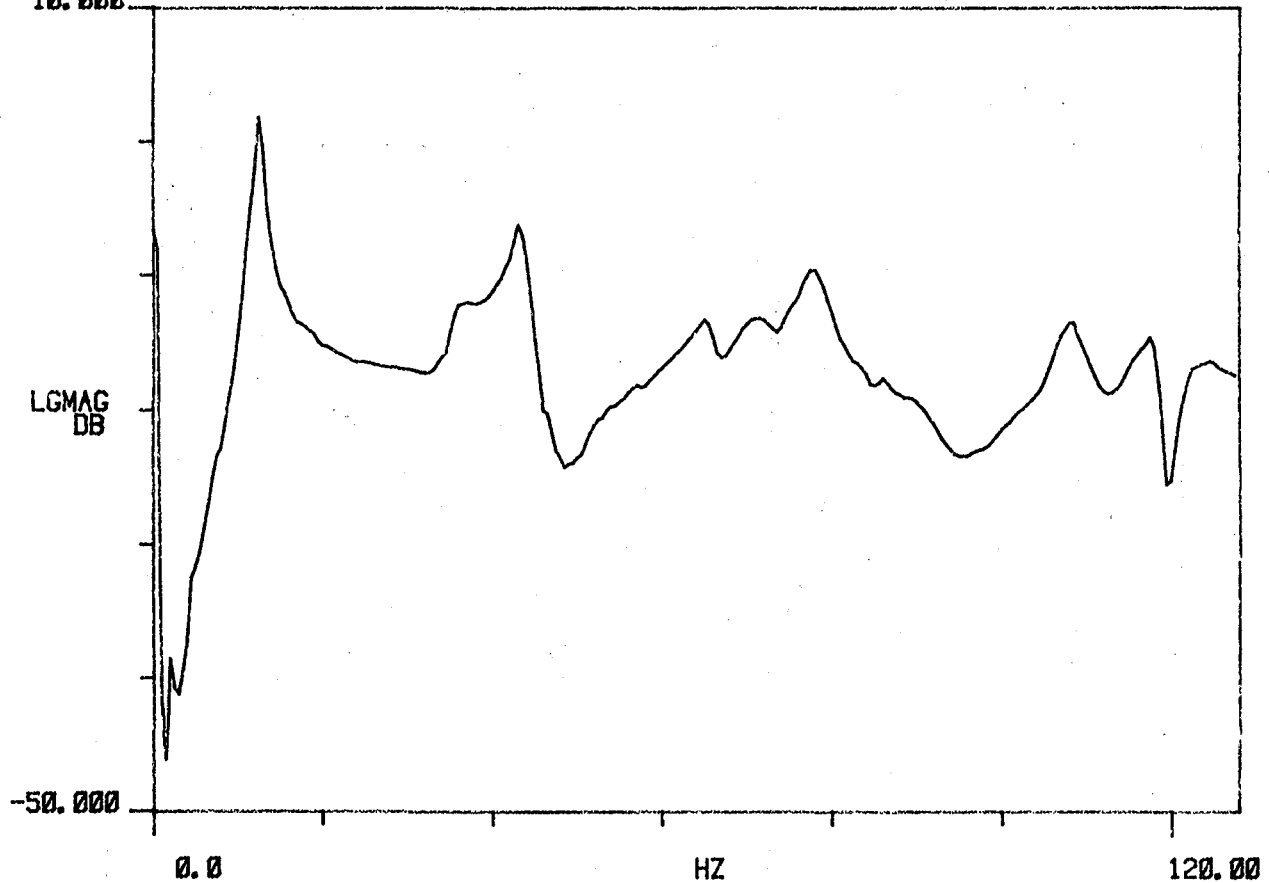
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.285	77.187	3.056	375.644 m	2.360
2	34.924	219.431	5.530	1.934	12.154
3	43.562	273.708	2.315	1.009	6.338
4	65.090	408.972	2.168	1.412	8.870
5	70.117	440.560	2.364	1.658	10.418
6	78.166	491.131	2.531	1.979	12.436
7	108.022	678.722	1.661	1.794	11.274
8	118.170	742.487	962.646 m	1.138	7.148

TRANS

R# 39

#A 325

10.000



FM6 BLADE 24. ACC. POS. #1. 11/81

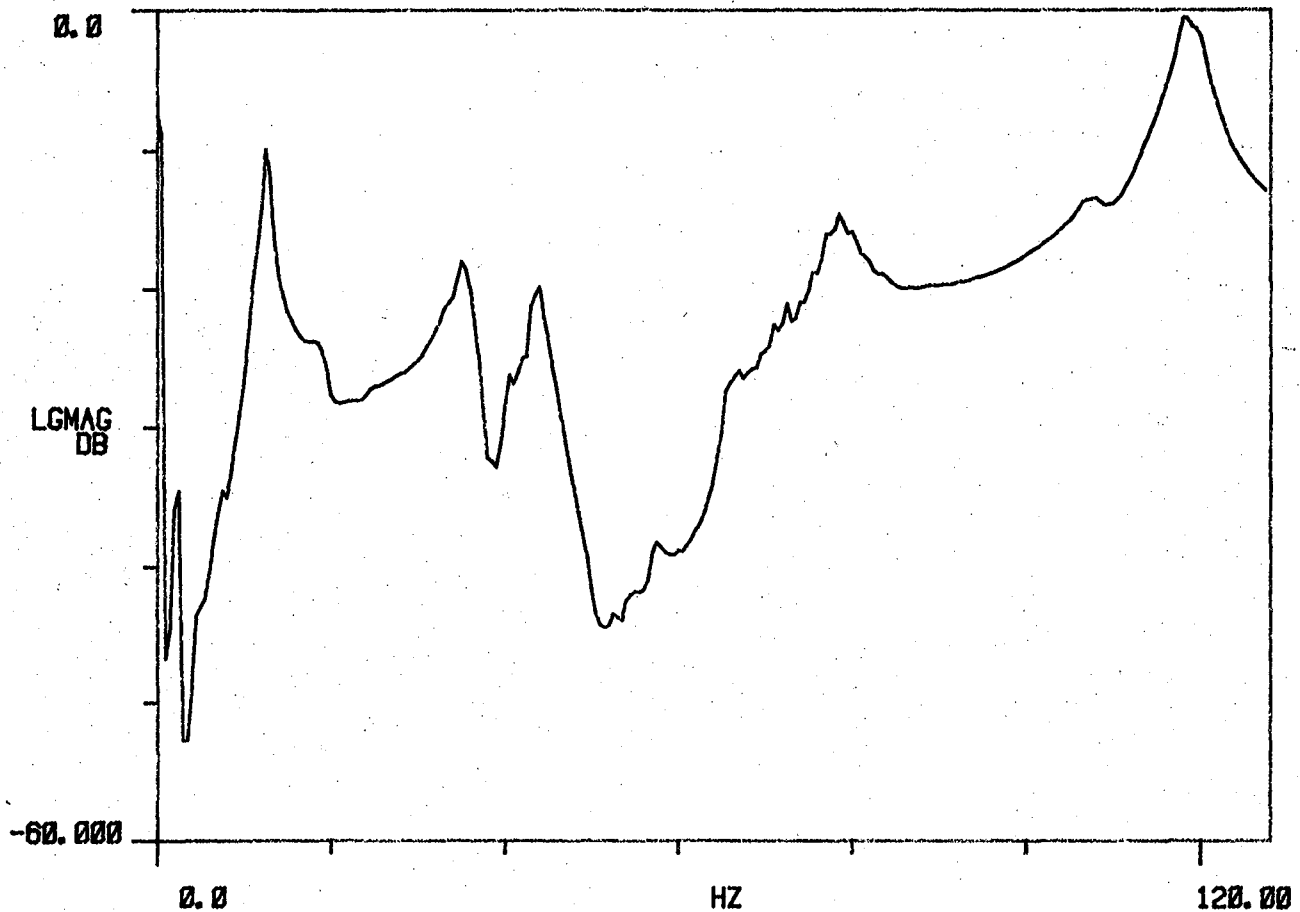
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	Z	HZ	R/S
1	12.268	77.081	3.106	381.254	2.395
2	35.497	223.036	3.409	1.211	7.608
3	43.907	275.875	2.339	1.027	6.455
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	77.480	486.824	3.021	2.341	14.712
7	105.896	665.366	2.298	2.435	15.297
8	118.678	745.677	1.511	1.793	11.267

TRANS

R# 1

#A 325



FM6 BLADE 24. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

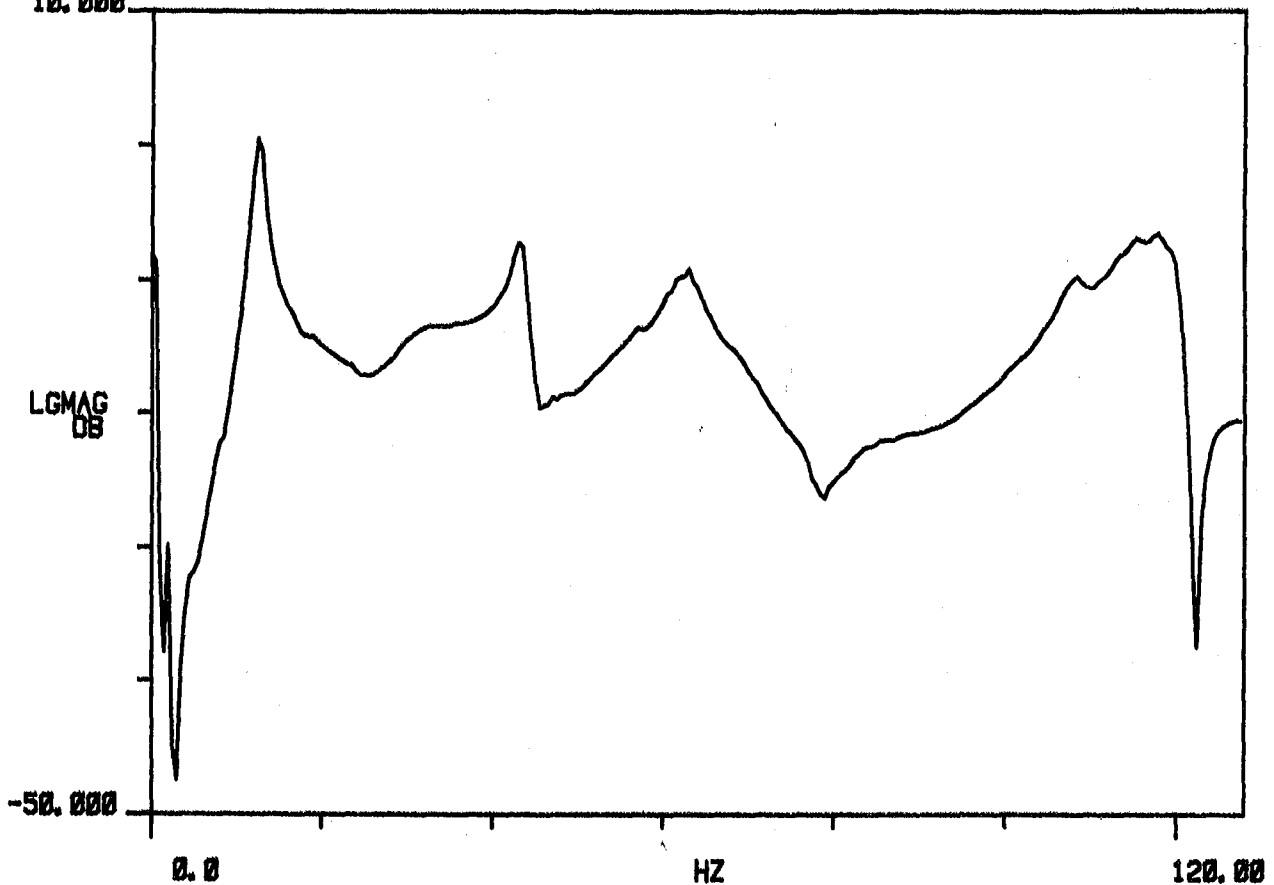
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.362	77.671	4.149	513.281	3.225
2	29.730	186.801	14.908	4.482	28.159
3	43.436	272.919	1.753	761.580	4.785
4	62.795	394.555	3.901	2.451	15.402
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	107.763	677.097	2.291	2.405	15.110
8	119.076	748.177	2.448	2.916	16.319

TRANS

R# 25

#A 325

10.000



FM4 BLADE 25. ACC. POS. #1. 11/81

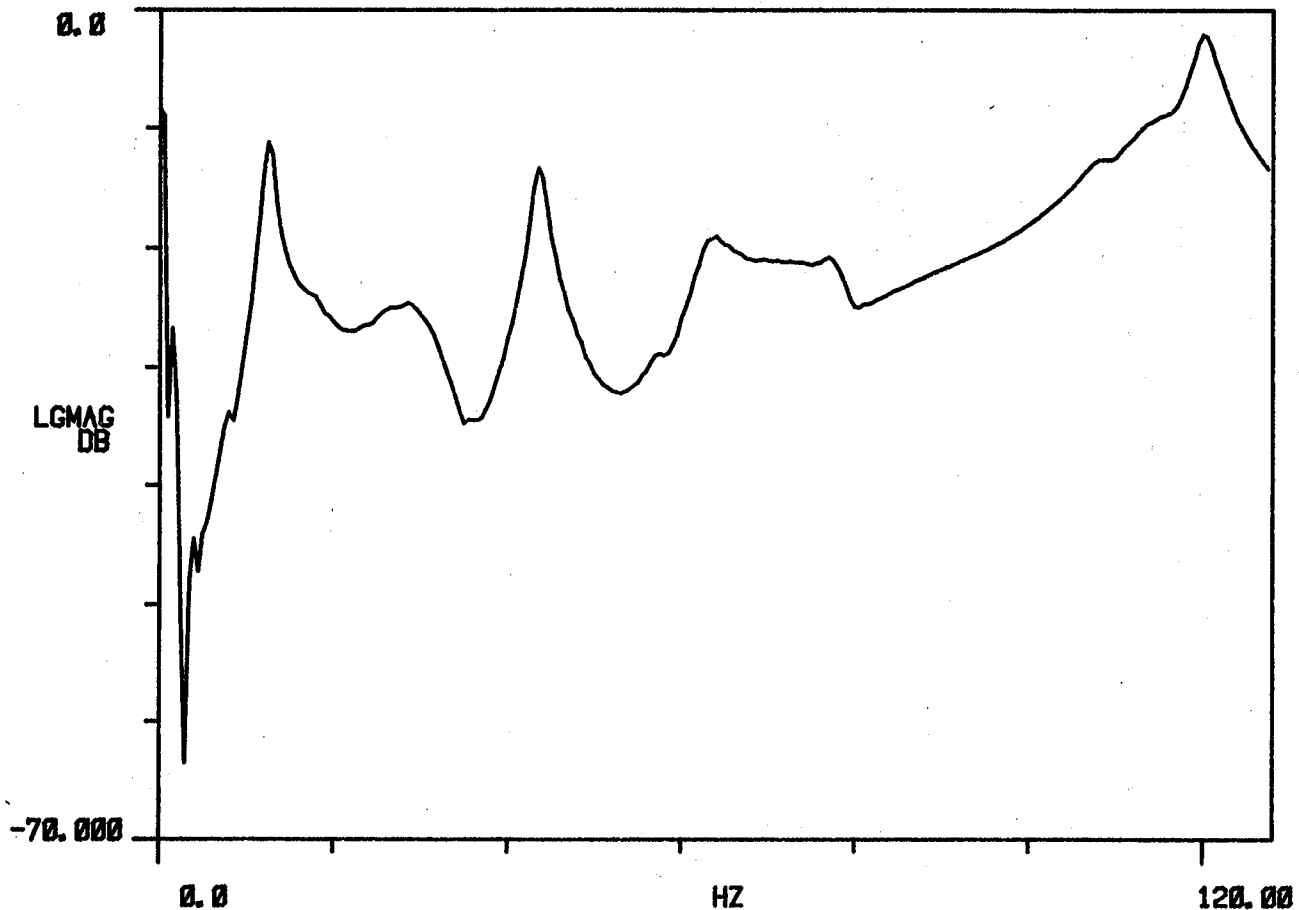
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.341	77.543	4.409	544.682	3.422
2	29.649	186.290	12.923	3.864	24.278
3	43.460	273.068	1.779	773.097	4.858
4	62.772	394.405	4.271	2.683	16.860
5	0.000	0.000	0.000	0.000	0.000
6	78.276	491.820	2.899	2.270	14.263
7	105.695	664.104	2.875	3.040	19.098
8	120.169	755.041	1.391	1.672	10.506

TRANS

R# 26

#A 325



FM4 BLADE 25. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

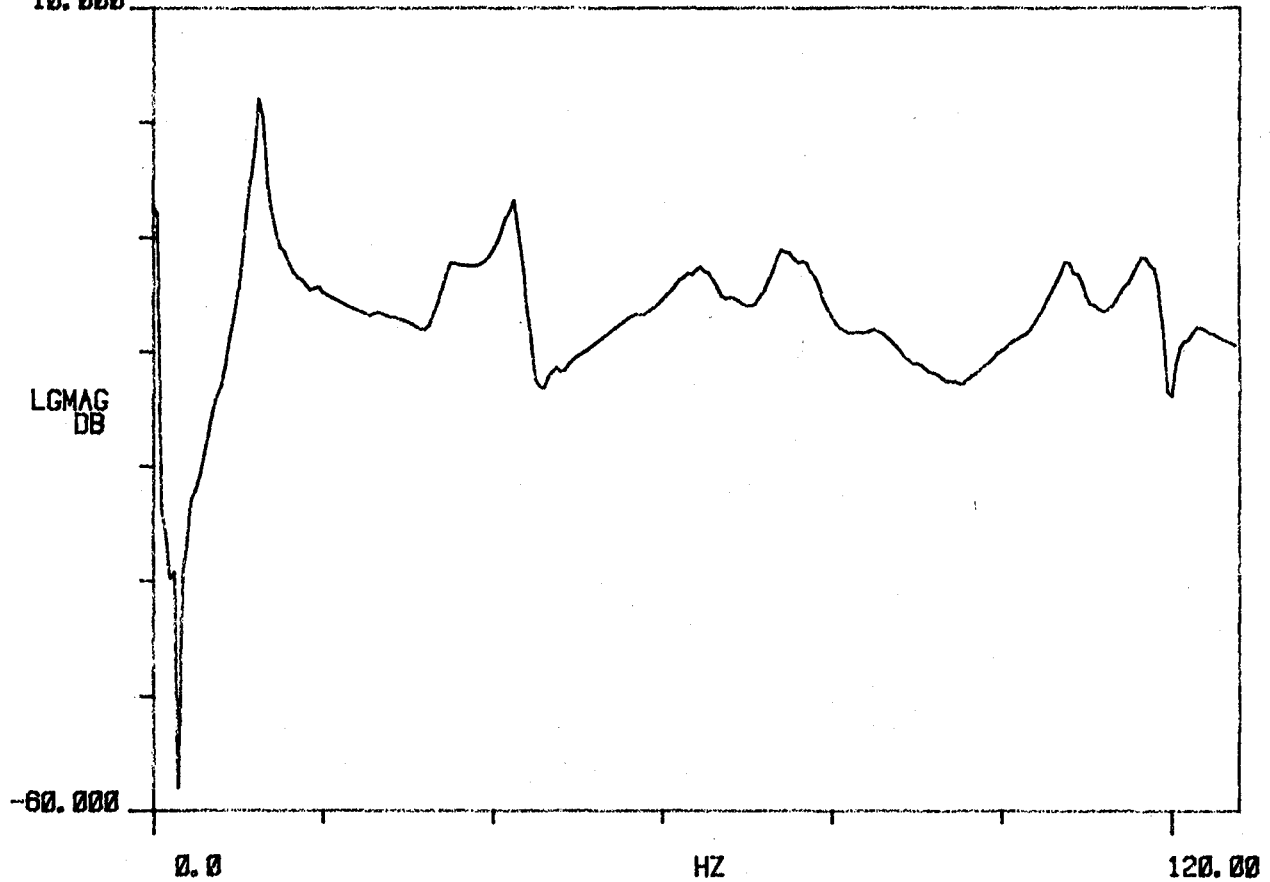
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.297	77.263	2.728	335.608 m	2.109
2	33.821	212.507	5.181	1.755	11.026
3	42.683	268.183	2.192	935.907 m	5.880
4	64.529	405.448	4.402	2.843	17.866
5	0.000	0.000	0.000	0.000	0.000
6	75.075	471.709	3.763	2.827	17.765
7	107.854	677.664	1.836	1.981	12.446
8	117.937	741.017	1.131	1.334	8.380

TRANS

R# 18

#A 325

10.000



FM6 BLADE 27. ACC. POS. #1. 11/81

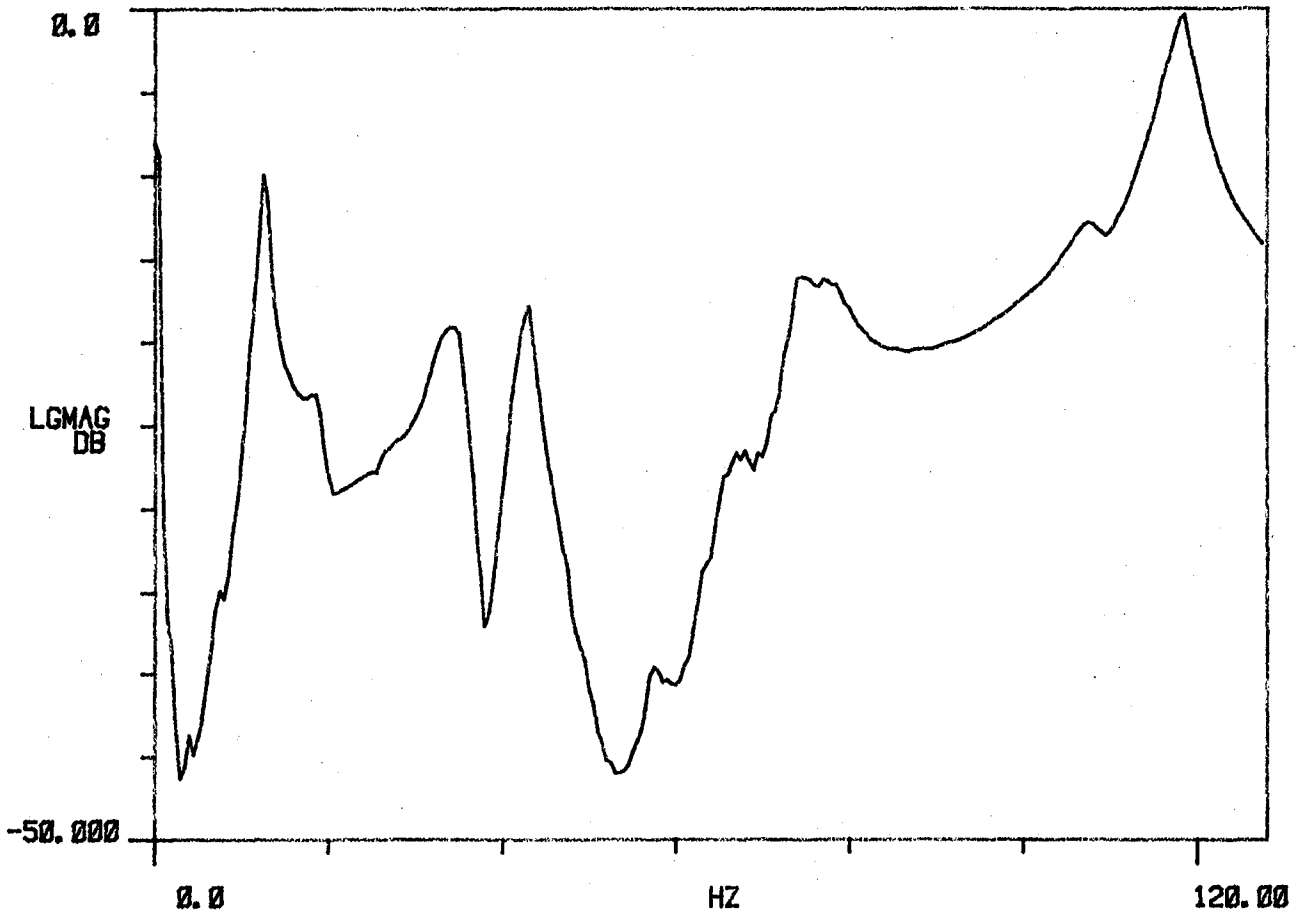
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.299	77.277	2.773	341.185	2.144
2	34.483	216.663	4.490	1.550	9.737
3	42.678	268.153	2.210	943.393	5.928
4	67.682	425.258	2.846	1.927	12.109
5	0.000	0.000	0.000	0.000	0.000
6	74.768	469.779	3.875	2.899	18.216
7	106.224	667.426	2.476	2.631	16.529
8	118.095	742.011	1.470	1.736	10.909

TRANS

R# 19

#A 325



FM6 BLADE 27. ACC. POS. #2. 11/81

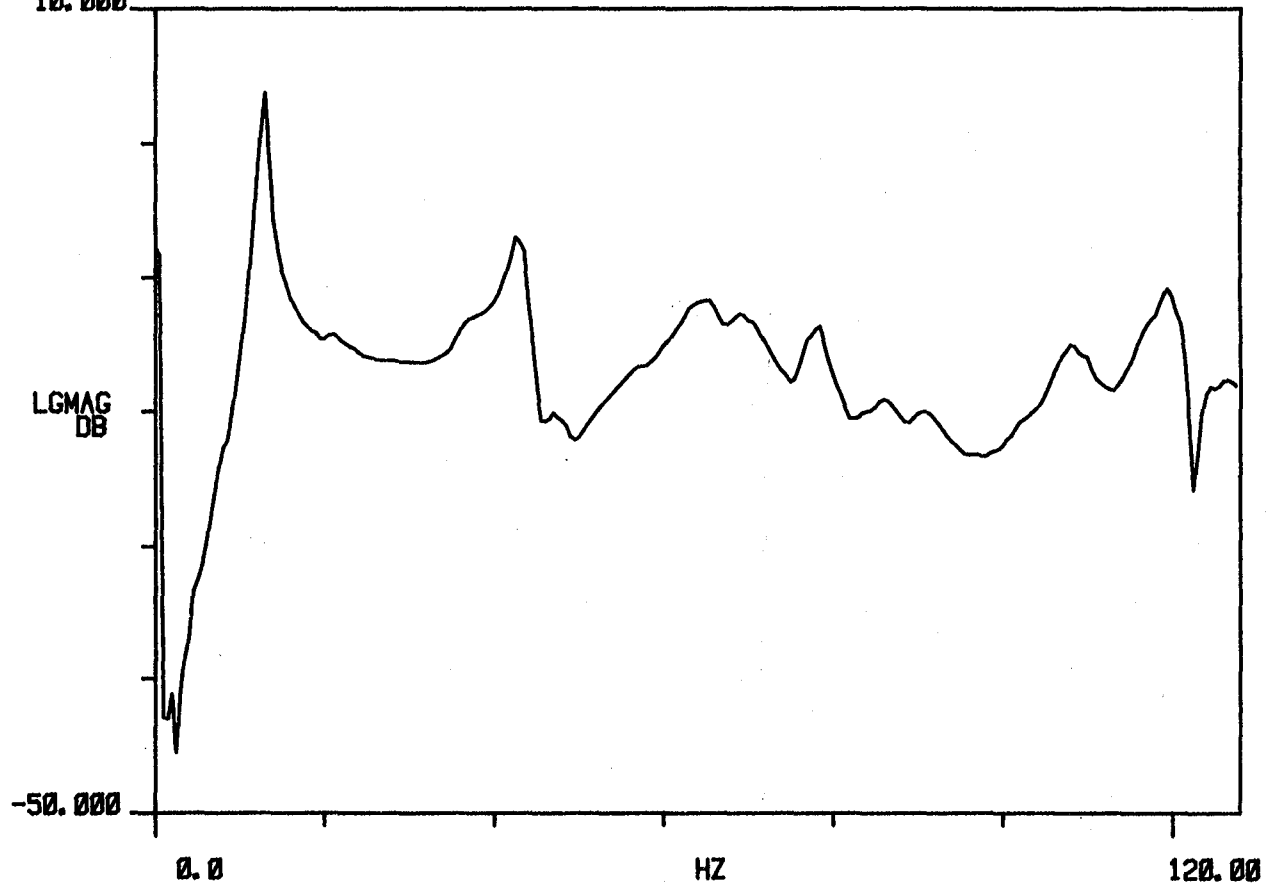
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.657	79.529	2.556	323.585	2.033
2	0.000	0.000	0.000	0.000	0.000
3	43.182	271.321	2.197	948.937	5.962
4	64.281	403.889	3.557	2.288	14.377
5	70.818	444.966	3.949	2.799	17.585
6	78.354	492.314	1.591	1.247	7.836
7	108.040	678.836	2.140	2.313	14.533
8	120.460	756.870	1.118	1.346	8.460

TRANS
10.000

R# 19

#A 325



FM4 BLADE 28. ACC. POS. #1. 11/81

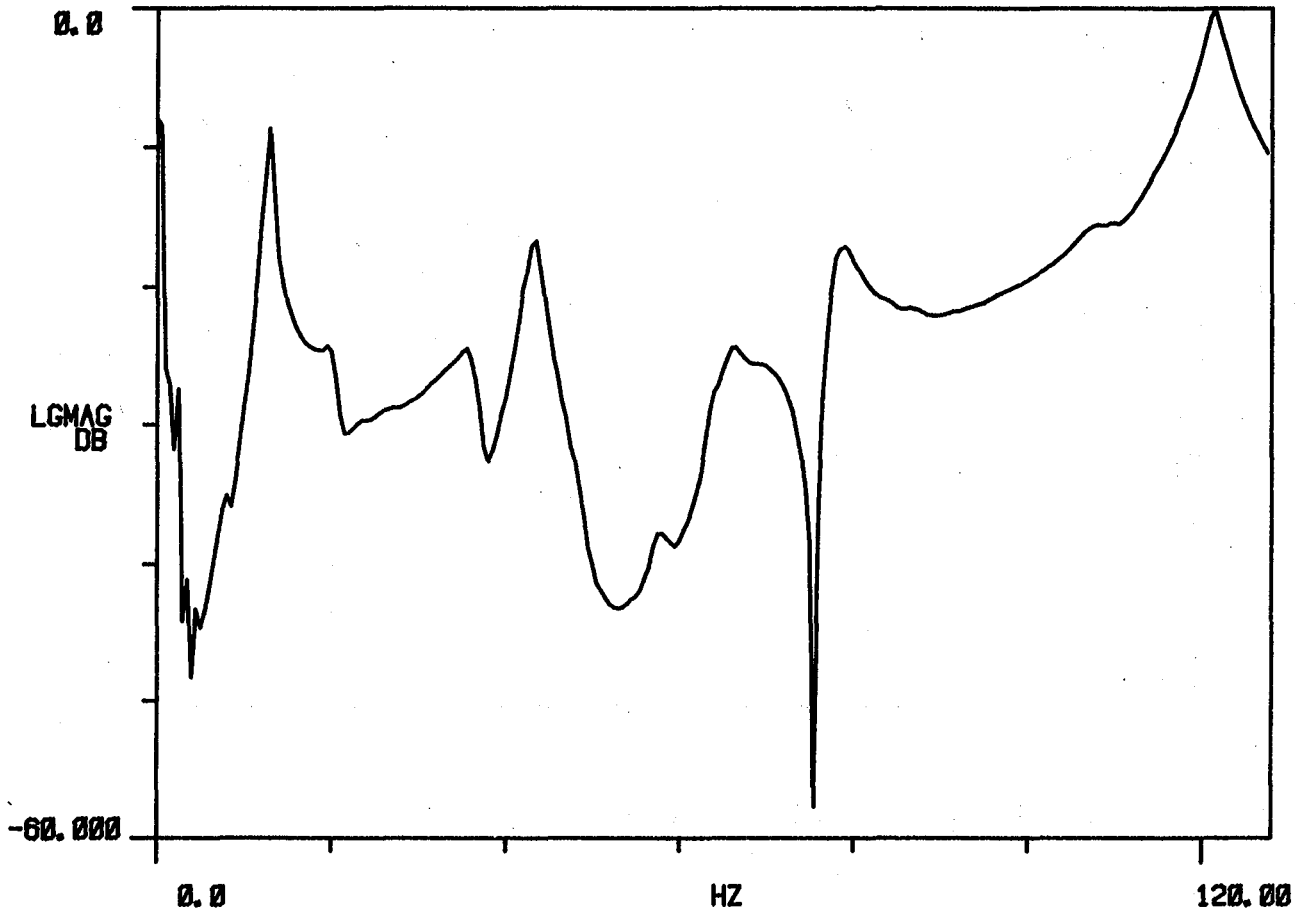
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.669	79.602	2.504	317.384	1.994
2	36.119	226.944	4.724	1.708	10.733
3	43.200	271.431	2.149	928.480	5.834
4	65.274	410.127	3.744	2.446	15.367
5	0.000	0.000	0.000	0.000	0.000
6	78.131	490.909	1.831	1.431	8.988
7	104.666	657.636	2.027	2.122	13.334
8	121.352	762.478	1.392	1.690	10.617

TRANS

R# 20

#A 325



FM4 BLADE 28. ACC. POS. #2. 11/81

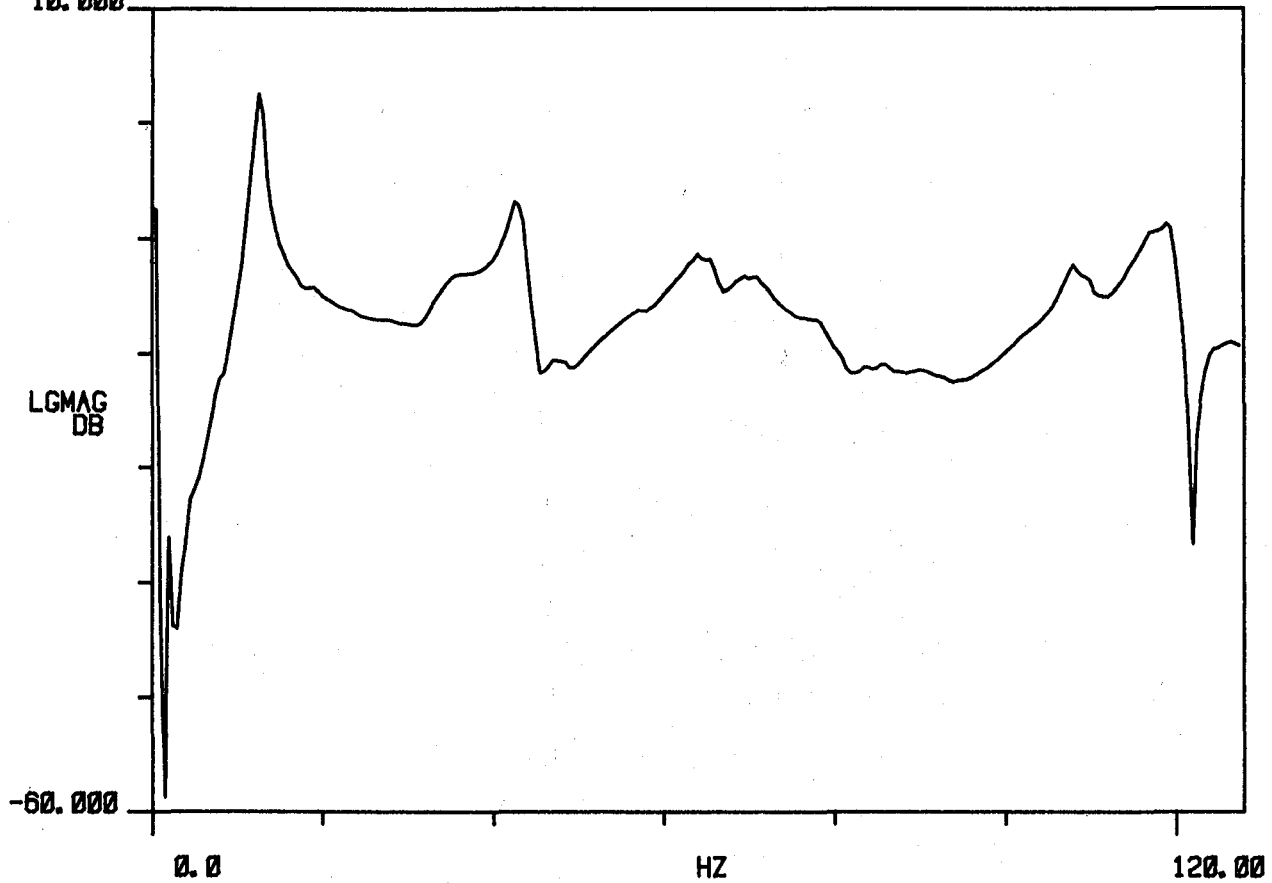
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.332	77.485	2.829	349.000	2.193
2	32.808	206.137	10.215	3.369	21.168
3	43.096	270.779	2.104	907.013	5.699
4	64.474	405.100	3.739	2.413	15.159
5	71.184	447.264	2.978	2.121	13.324
6	0.000	0.000	0.000	0.000	0.000
7	108.031	678.778	1.915	2.069	12.998
8	119.126	748.488	1.527	1.820	11.434

TRANS
10.000

R# 17

#A 325



FM4 BLADE 29. ACC. POS. #1. 11/81

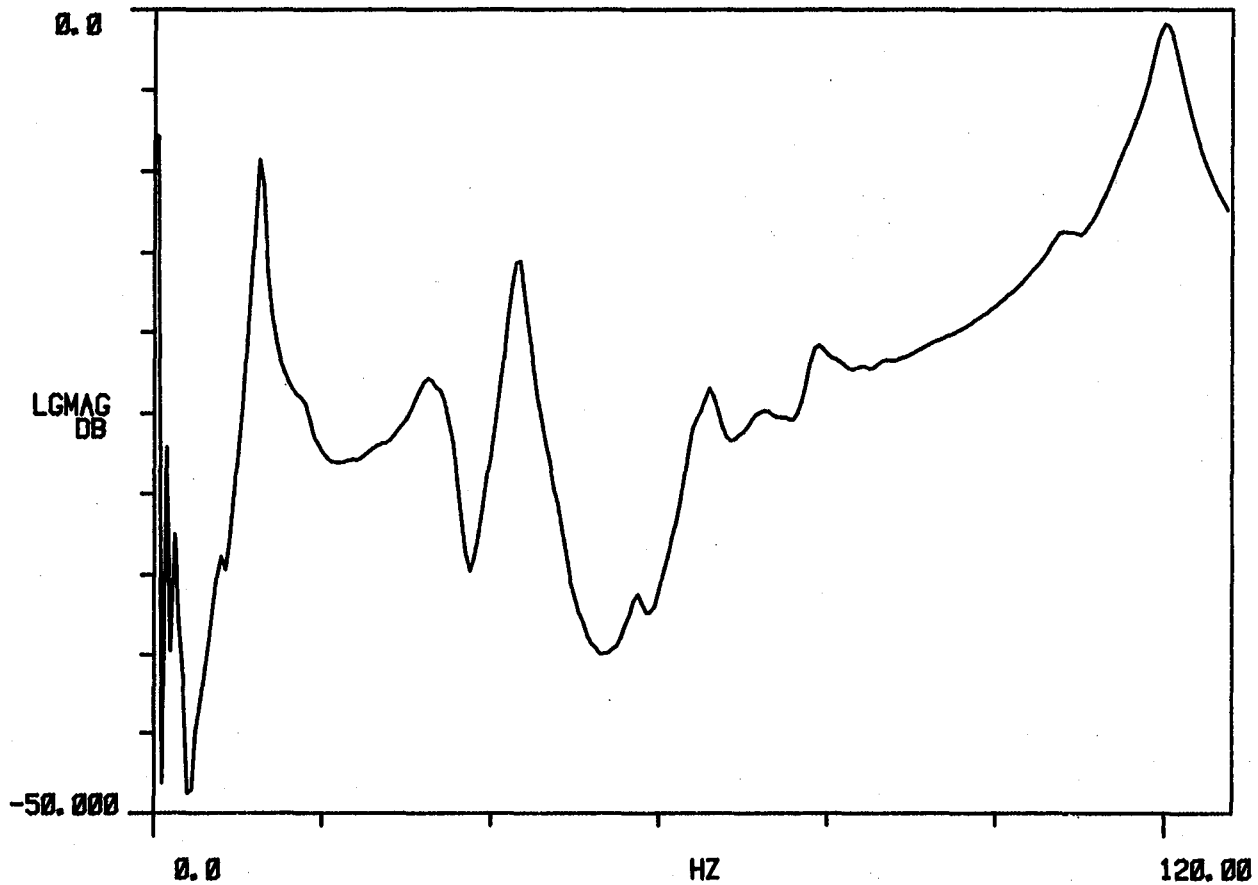
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.342	77.548	2.876	355.096	2.231
2	33.655	211.458	7.002	2.362	14.843
3	43.120	270.930	2.067	891.687	5.603
4	65.307	410.337	3.108	2.031	12.760
5	71.193	447.319	2.879	2.051	12.884
6	78.026	490.249	2.279	1.779	11.178
7	105.936	665.613	1.894	2.007	12.609
8	120.171	755.054	1.582	1.901	11.945

TRANS

R# 18

#A 325



FM4 BLADE 29. ACC. POS. #2. 11/81

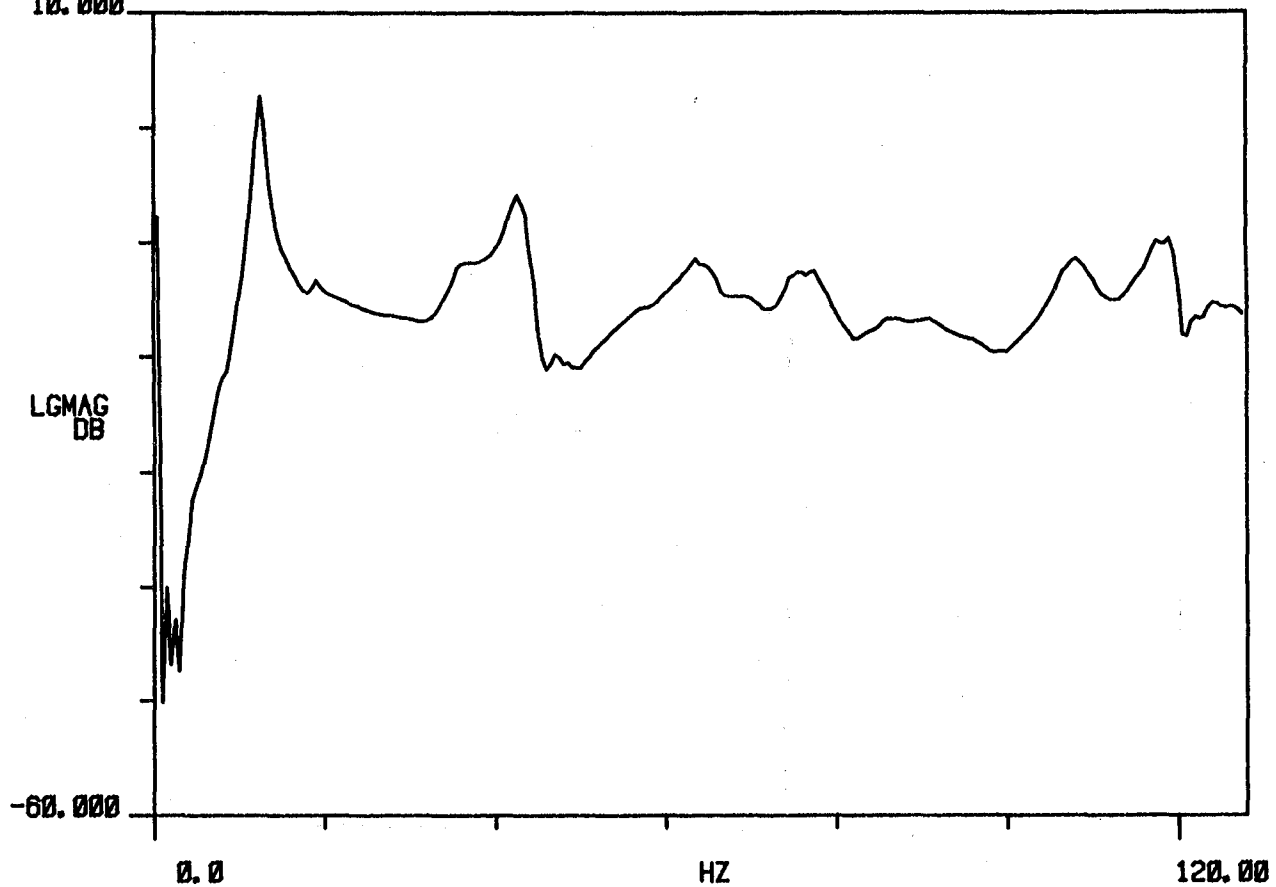
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.341	77.539	3.674	453.692	2.851
2	34.121	214.387	6.104	2.087	13.111
3	42.953	269.880	2.667	1.146	7.200
4	64.129	402.934	4.036	2.591	16.277
5	0.000	0.000	0.000	0.000	0.000
6	76.874	483.016	3.242	2.493	15.665
7	107.763	677.097	2.152	2.320	14.575
8	119.066	748.116	1.077	1.283	8.059

TRANS
10.000

R# 21

#A 325



FM4 BLADE 30. ACC. POS. #1. 11/81

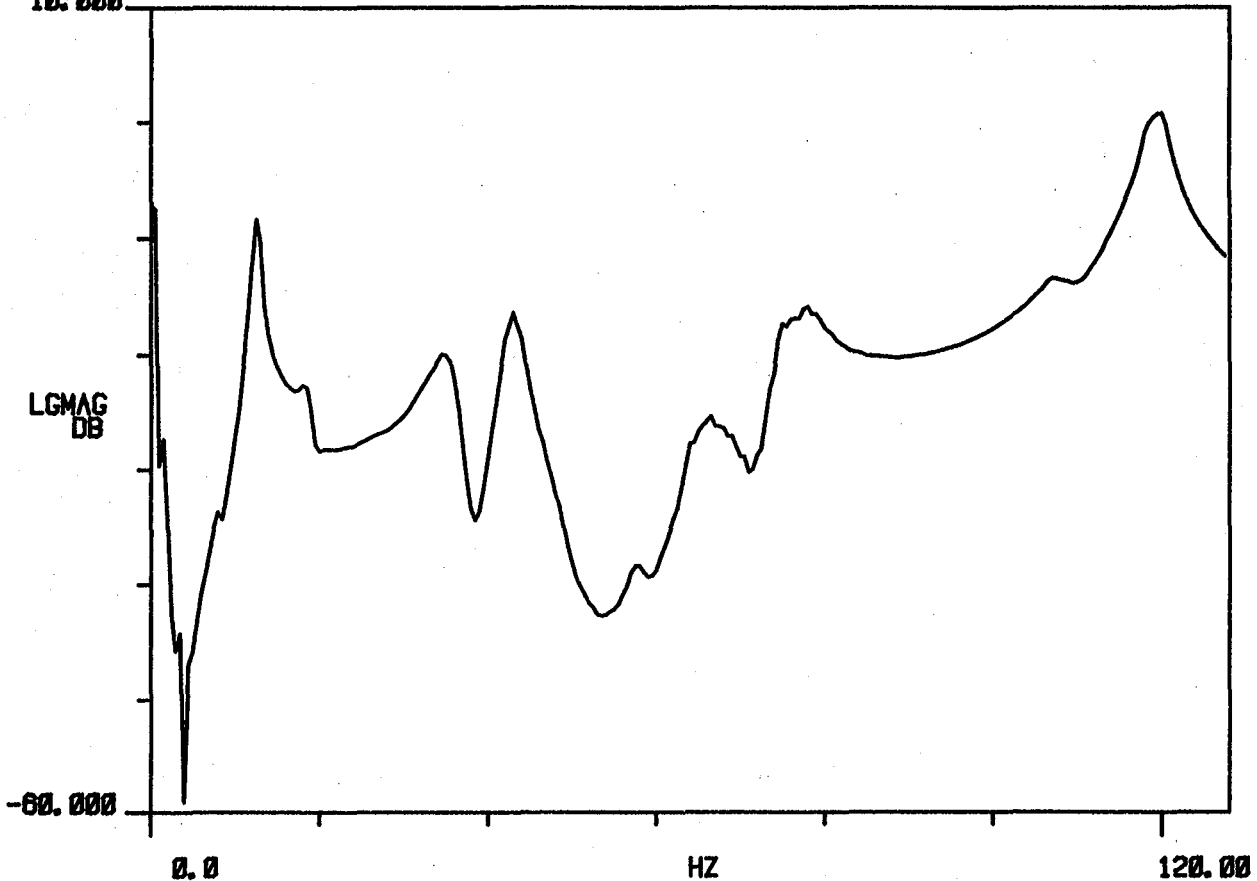
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.397	77.890	3.314	411.008	2.582
2	35.198	221.158	4.657	1.641	10.310
3	43.019	270.295	2.403	1.034	6.496
4	66.252	416.276	4.271	2.833	17.797
5	0.000	0.000	0.000	0.000	0.000
6	75.988	477.448	3.476	2.643	16.608
7	105.483	662.770	2.029	2.141	13.450
8	119.340	749.837	1.325	1.581	9.936

TRANS
10.000

R# 22

#A 325



FM4 BLADE 30. ACC. POS. #2. 11/81

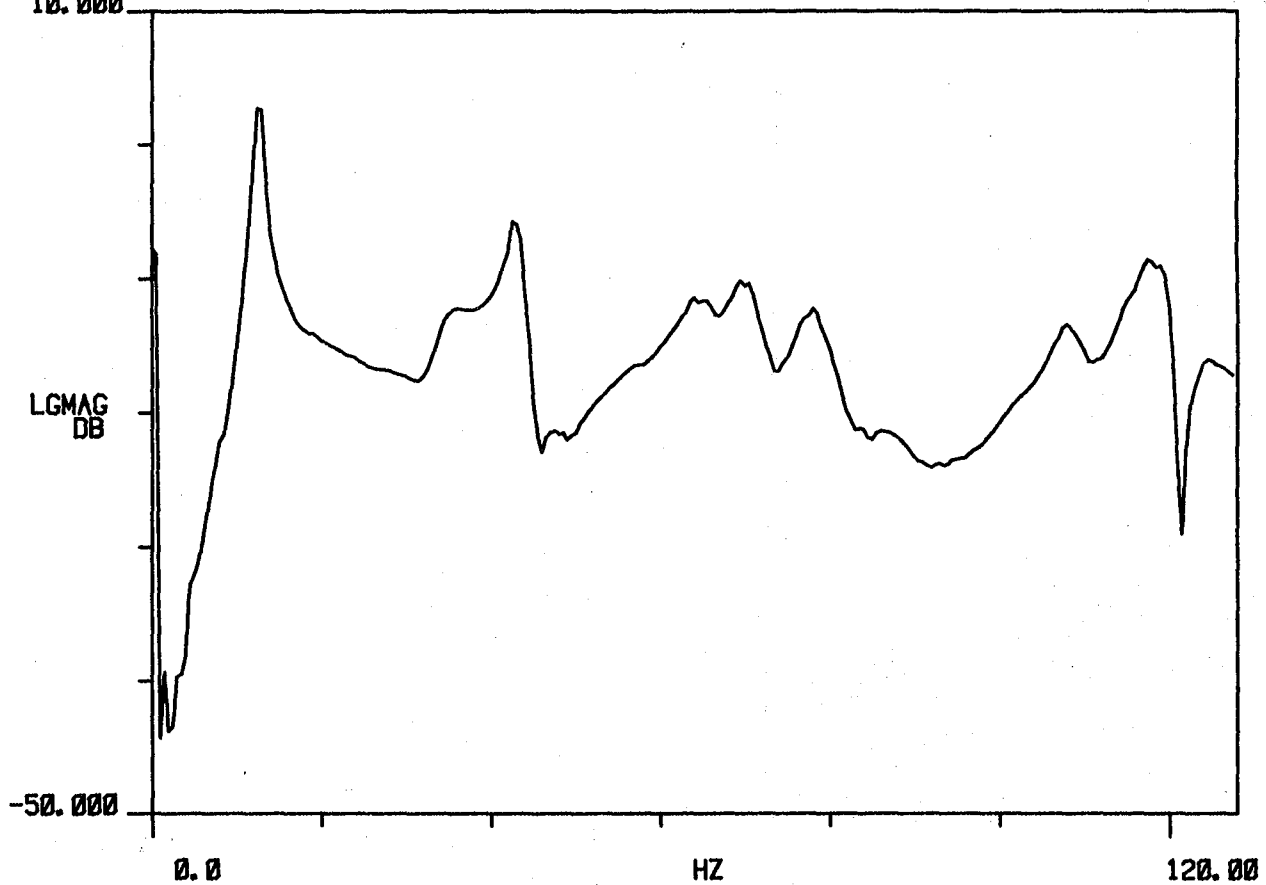
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.438	78.153	2.567	319.426	2.007
2	33.927	213.169	7.251	2.467	15.498
3	43.138	271.046	1.842	794.613	4.993
4	63.861	401.250	3.589	2.293	14.408
5	70.406	442.375	2.529	1.781	11.190
6	78.356	492.327	2.191	1.717	10.791
7	107.791	677.270	1.936	2.088	13.117
8	118.801	746.447	1.476	1.753	11.017

TRANS
10.000

R# 15

#A 325



FM4 BLADE 31. ACC. POS. #1. 11/81

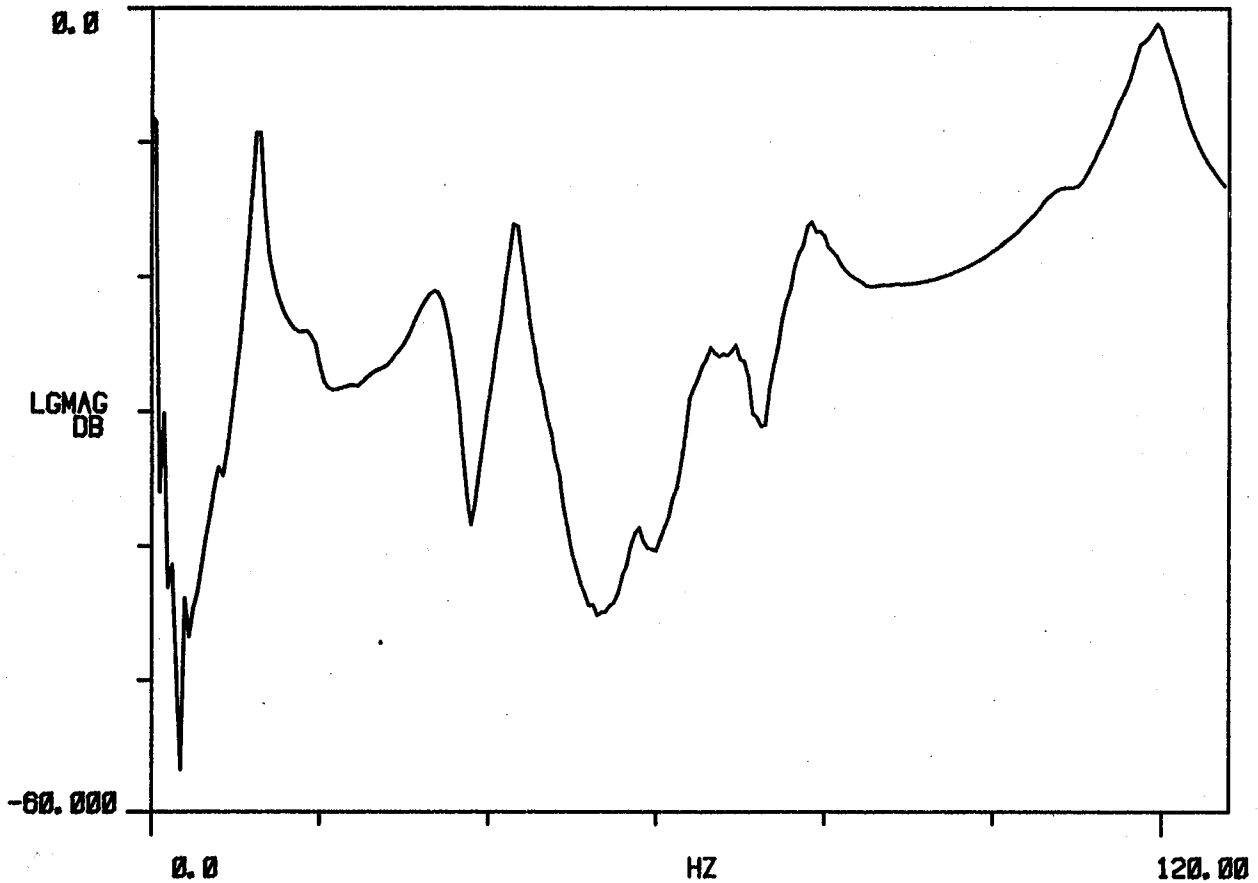
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.441	78.169	2.530	314.839	1.978
2	34.114	214.348	5.587	1.909	11.993
3	43.155	271.152	1.813	782.582	4.917
4	68.671	431.476	4.239	2.914	18.307
5	0.000	0.000	0.000	0.000	0.000
6	77.682	488.091	3.029	2.354	14.793
7	104.783	658.374	2.151	2.254	14.165
8	119.110	748.389	1.895	2.257	14.181

TRANS

R# 16

#A 325



FM4 BLADE 31. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

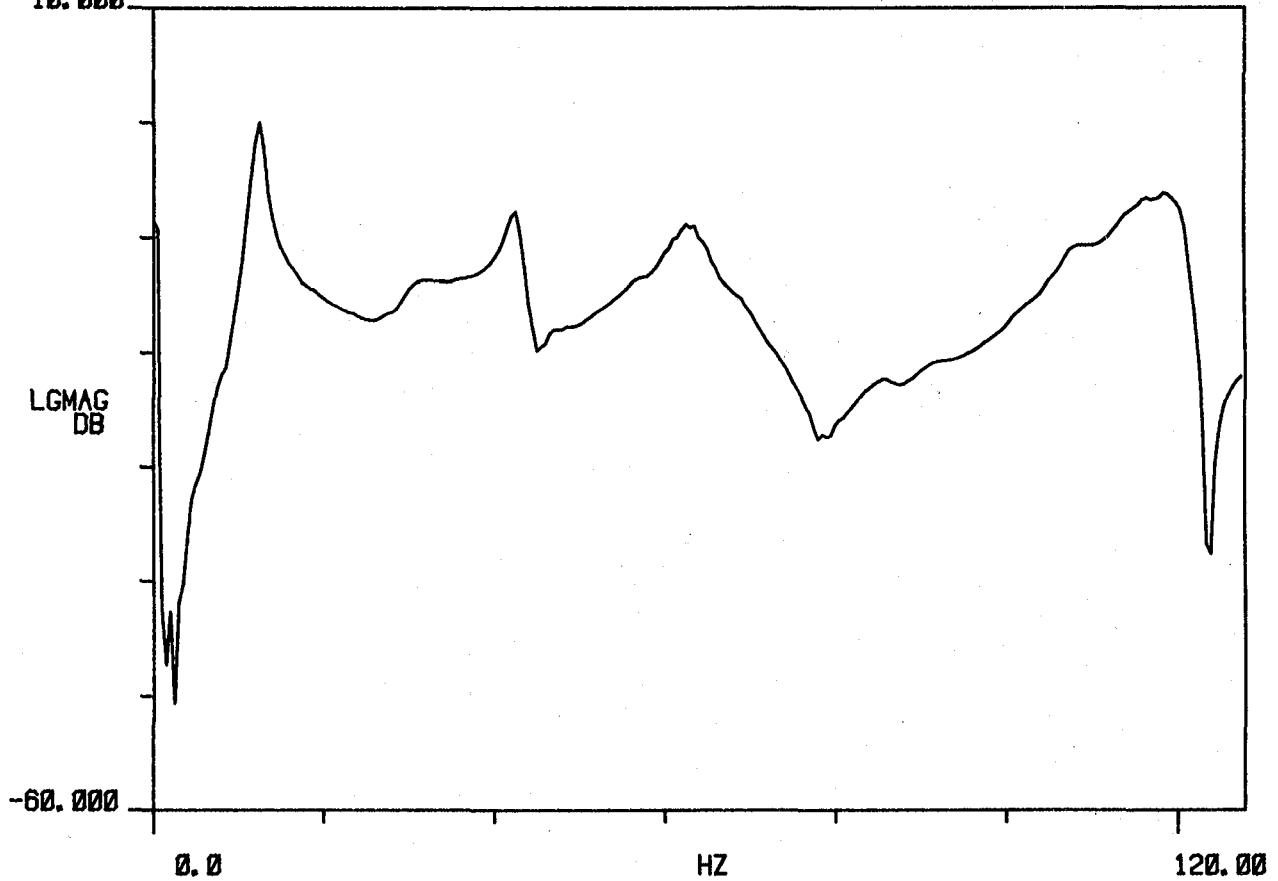
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.204	76.678	4.494	548.995	3.449
2	29.579	185.853	9.666	2.872	18.048
3	42.693	268.249	2.152	919.119	5.775
4	63.024	395.992	4.234	2.671	16.780
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	107.703	676.716	3.376	3.638	22.856
8	119.697	752.079	2.506	3.000	18.852

TRANS

R# 11

#A 325

10.000



FM4 BLADE 32. ACC. POS. #1. 11/81

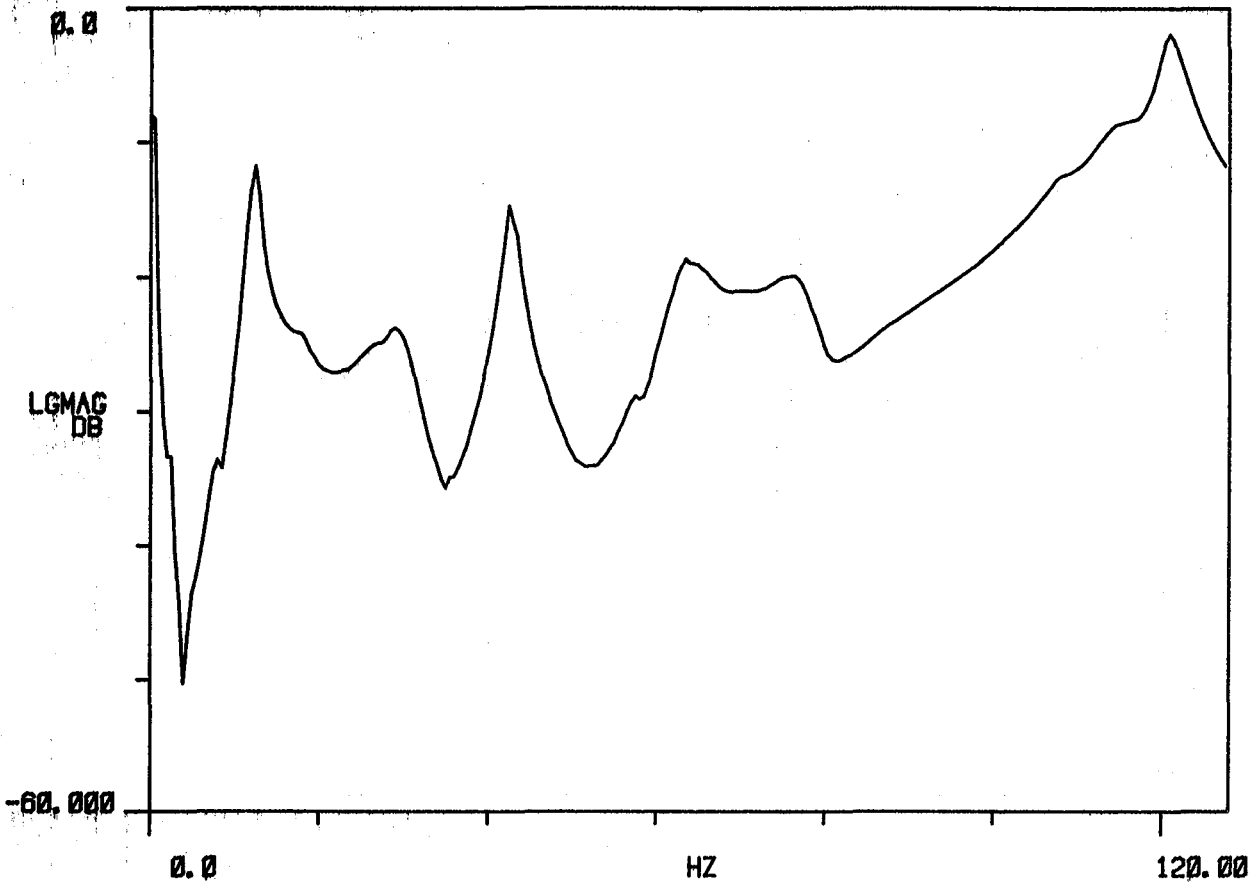
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.177	76.513	4.530	552.203	3.470
2	30.110	189.189	8.112	2.451	15.398
3	42.678	268.151	2.007	856.788	5.383
4	63.086	396.384	4.585	2.896	18.195
5	0.000	0.000	0.000	0.000	0.000
6	77.139	484.676	3.950	3.049	19.159
7	0.000	0.000	0.000	0.000	0.000
8	120.949	759.946	1.449	1.753	11.012

TRANS

R# 12

#A 325



FM4 BLADE 32. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.455	78.258	2.320	289.075 m	1.816
2	34.872	219.106	4.598	1.605	10.086
3	42.982	270.064	2.050	881.372 m	5.538
4	64.186	403.291	5.194	3.339	20.977
5	0.000	0.000	0.000	0.000	0.000
6	77.756	488.554	3.176	2.470	15.522
7	107.897	677.939	1.911	2.062	12.958
8	119.918	753.470	825.764 m	990.278 m	6.222

TRANS

R# 6

#A 325

10.000

LGMAG
DB

-50.000

0.0

HZ

120.00

FM6 BLADE 33. ACC. POS. #1. 11/81

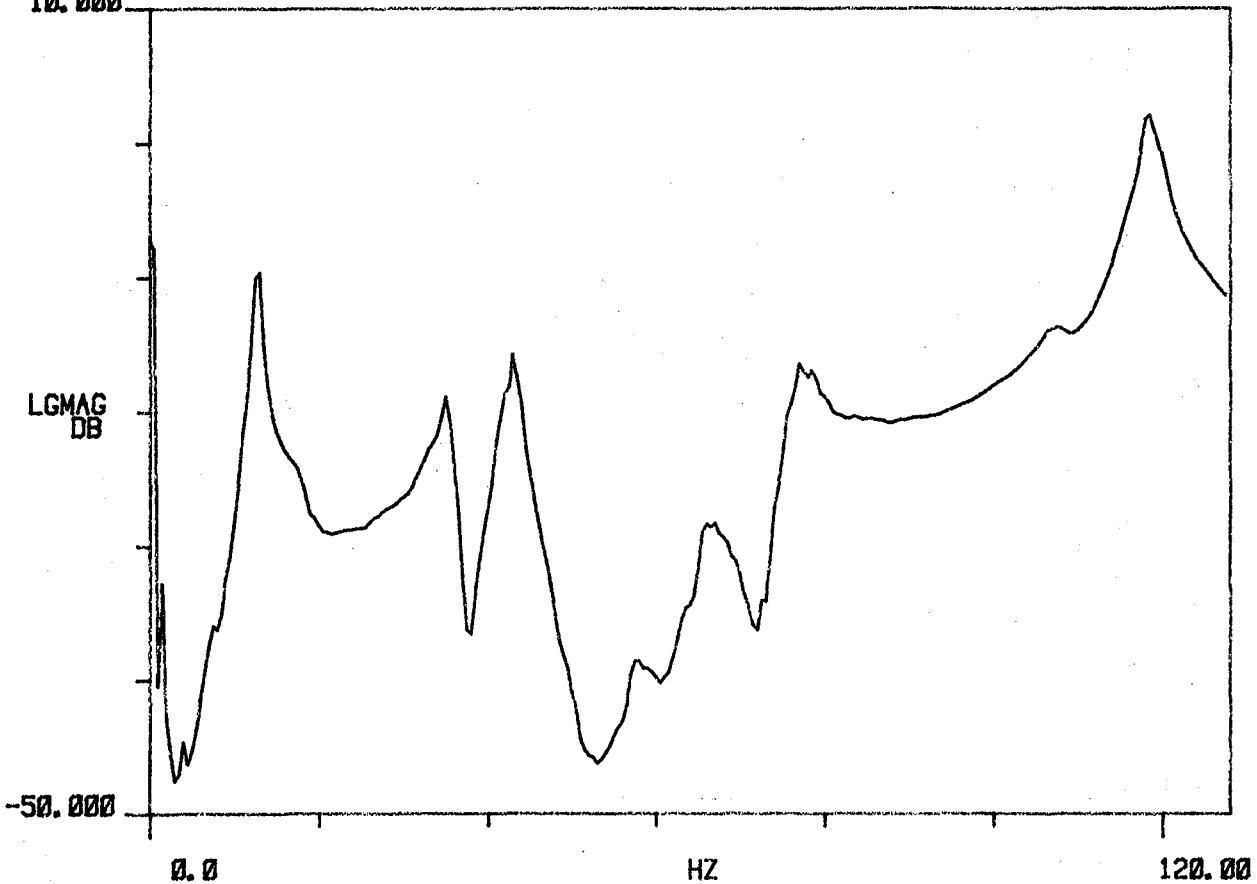
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.454	78.248	2.347	292.338	1.837
2	35.288	221.723	2.622	925.416	5.815
3	42.950	269.865	2.127	913.753	5.741
4	66.774	419.556	3.336	2.229	14.003
5	0.000	0.000	0.000	0.000	0.000
6	76.699	481.917	2.467	1.893	11.893
7	105.803	664.778	2.166	2.292	14.400
8	118.500	744.556	1.151	1.365	8.574

TRANS
10.000

R# 7

#A: 325



FM6 BLADE 33. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

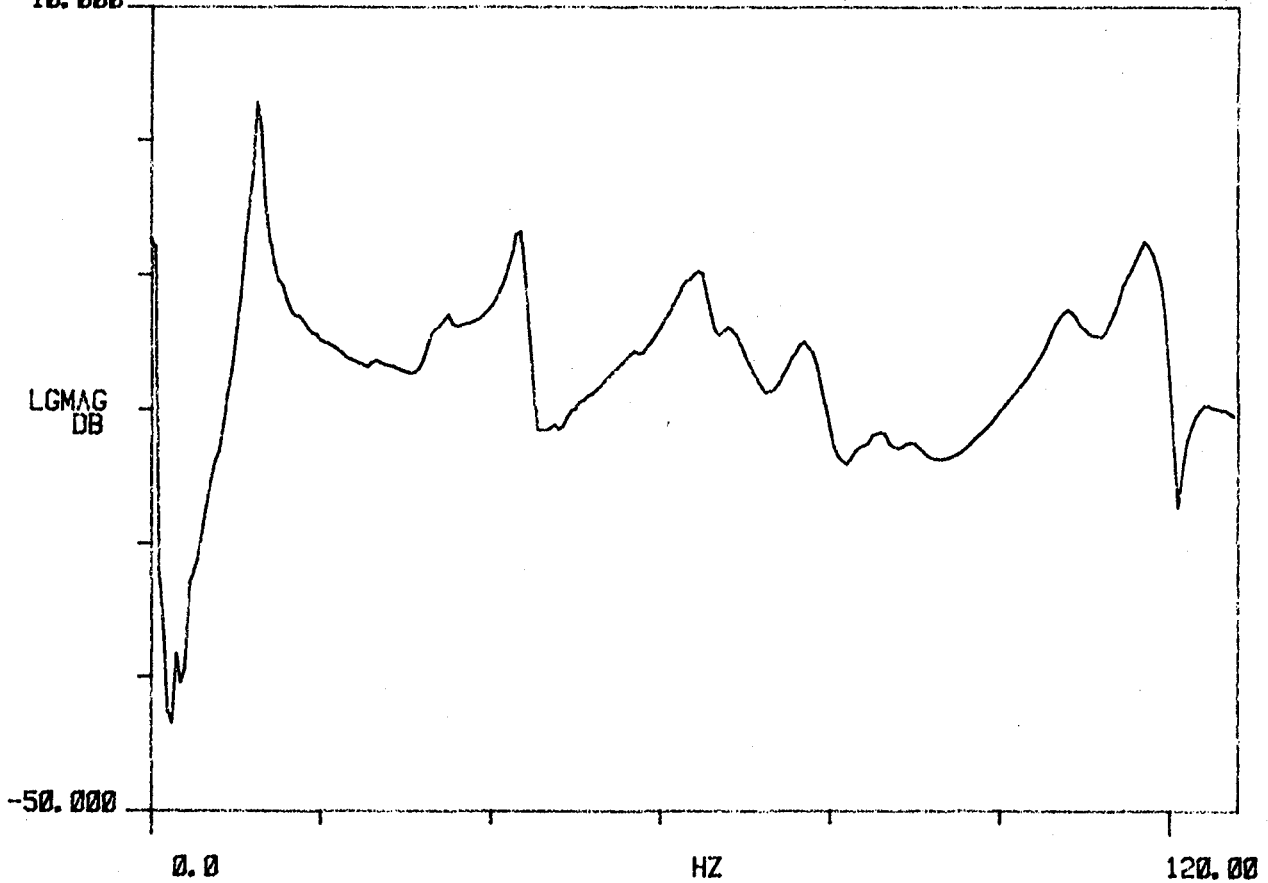
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.296	77.260	2.306	283.578 m	1.782
2	33.454	210.199	5.098	1.708	10.730
3	43.367	272.482	1.984	860.772 m	5.408
4	64.449	404.948	3.062	1.974	12.405
5	69.864	438.968	1.613	1.127	7.080
6	77.910	489.524	2.000	1.559	9.794
7	107.626	676.231	2.315	2.492	15.656
8	117.912	740.862	1.467	1.730	10.872

TRANS

R# 14

#A 325

10.000



FM6 BLADE 34. ACC. POS. #1. 11/81

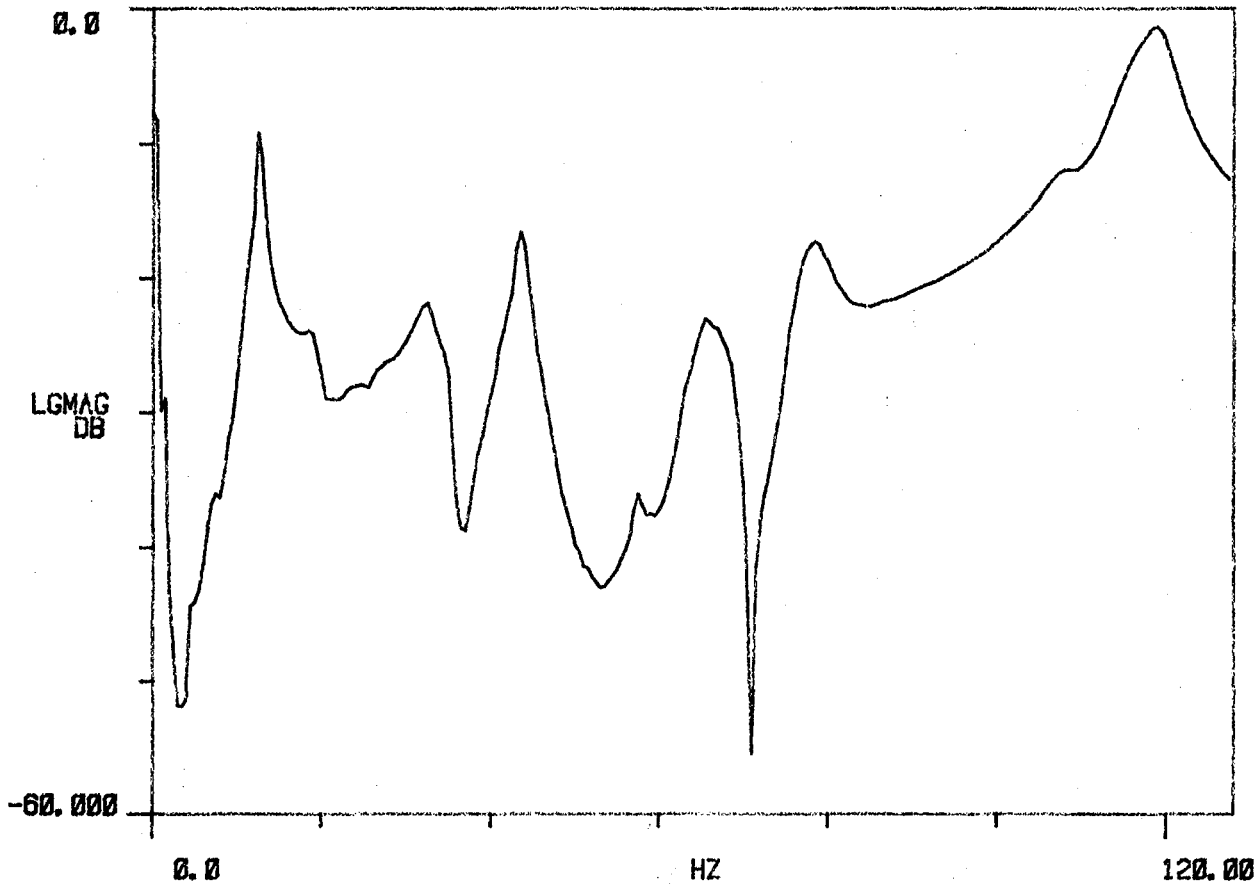
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.294	77.243	2.351	289.047 m	1.816
2	32.811	206.156	5.973	1.963	12.335
3	43.535	273.539	1.917	834.814 m	5.245
4	66.055	415.033	2.976	1.967	12.357
5	0.000	0.000	0.000	0.000	0.000
6	77.632	487.775	2.516	1.954	12.275
7	105.589	663.432	3.188	3.368	21.163
8	118.459	744.298	2.198	2.605	16.367

TRANS

R# 15

#A 325



FM6 BLADE 34. ACC. POS. #2. 11/81

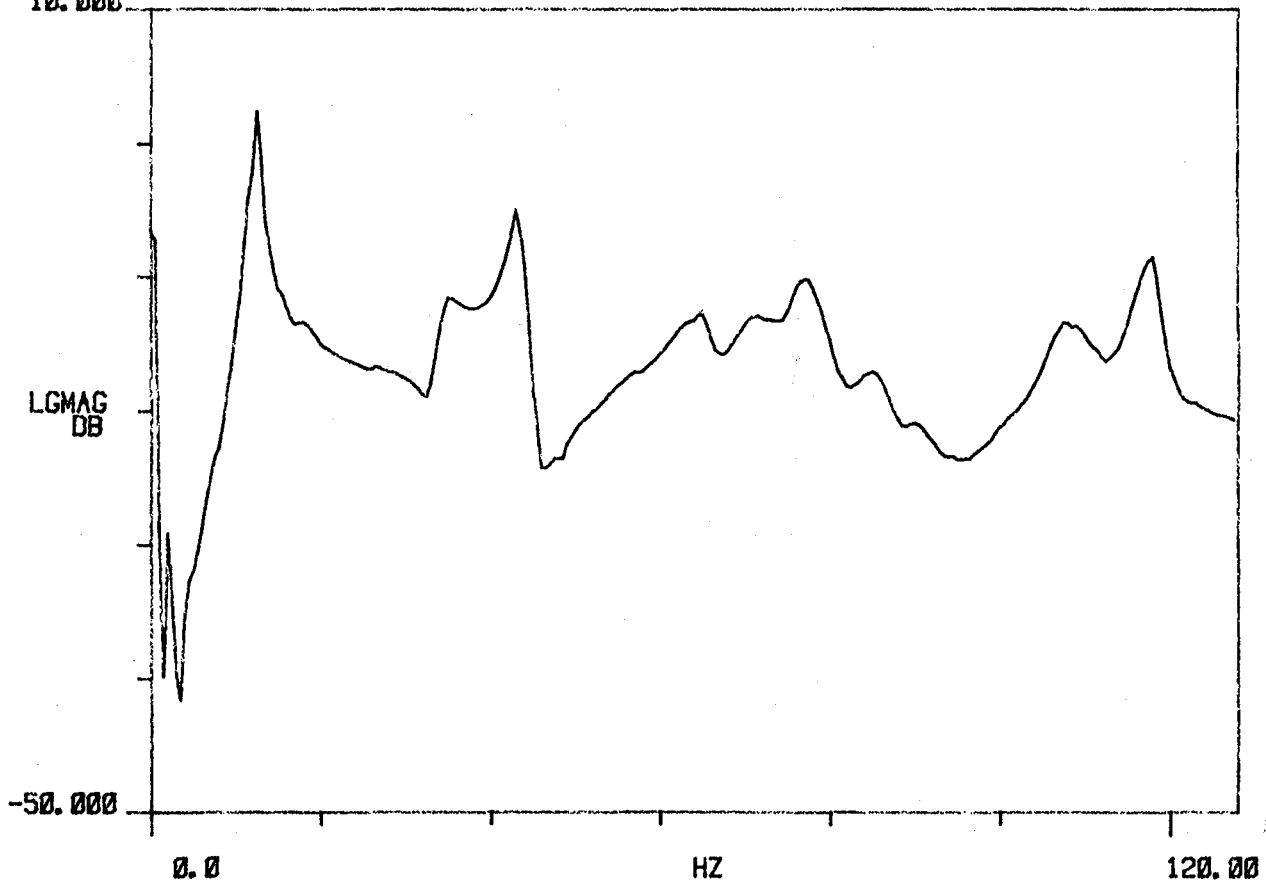
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.200	76.654	2.576	314.431 m	1.976
2	34.107	214.300	4.125	1.408	8.847
3	43.331	272.257	1.895	821.157 m	5.159
4	64.533	405.472	3.642	2.352	14.779
5	70.042	440.088	2.870	2.011	12.634
6	77.500	486.950	2.709	2.101	13.198
7	107.701	676.704	2.831	3.050	19.166
8	118.065	741.823	892.386 m	1.054	6.620

TRANS
10.000

R# 12

#A 325



FM6 BLADE 35. ACC. POS. #1. 11/81

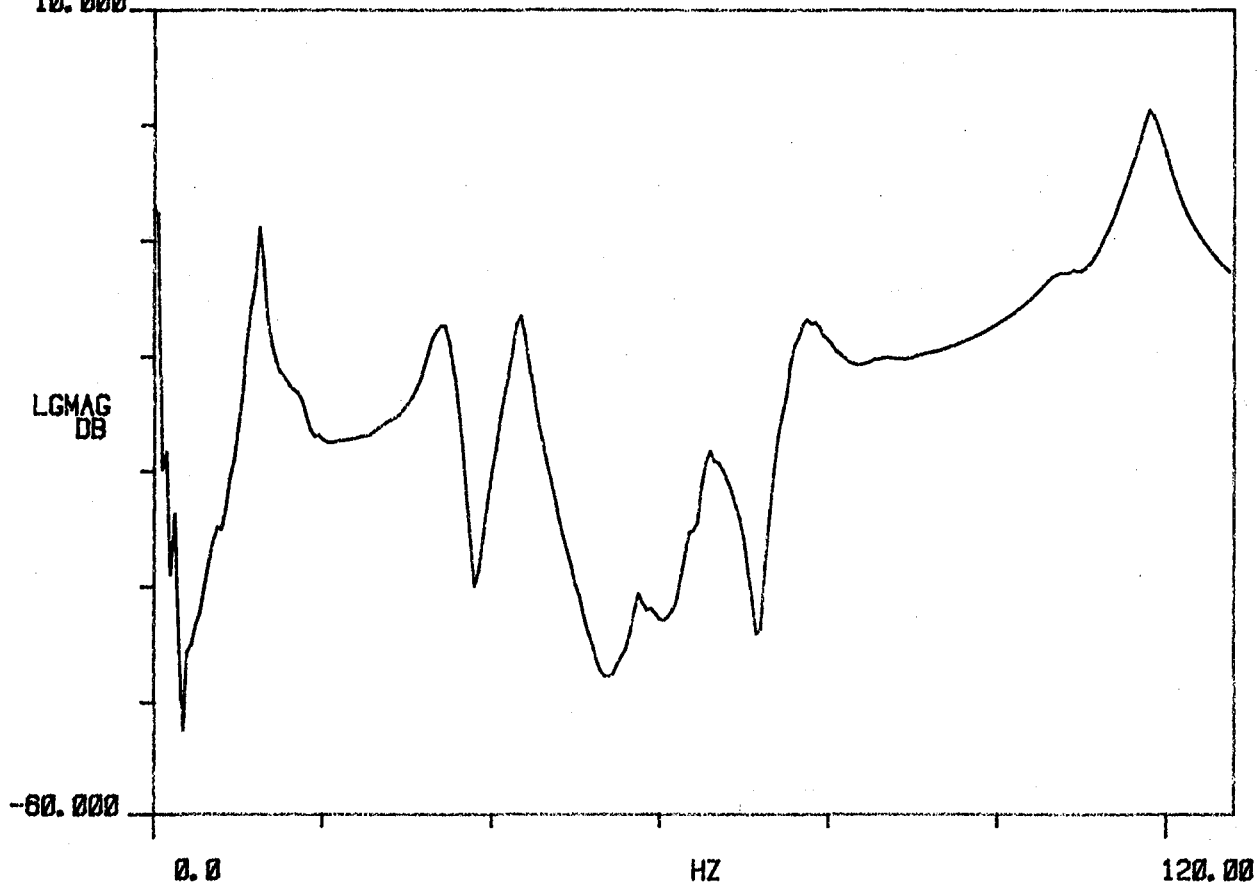
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.210	76.716	2.565	313.294	1.968
2	34.340	215.768	3.779	1.299	8.159
3	43.367	272.482	1.984	860.772	5.408
4	66.360	416.953	2.525	1.676	10.533
5	0.000	0.000	0.000	0.000	0.000
6	76.850	482.862	2.724	2.094	13.160
7	104.392	655.916	2.286	2.387	14.996
8	118.145	742.326	1.360	1.607	10.097

TRANS
10.000

R#: 13

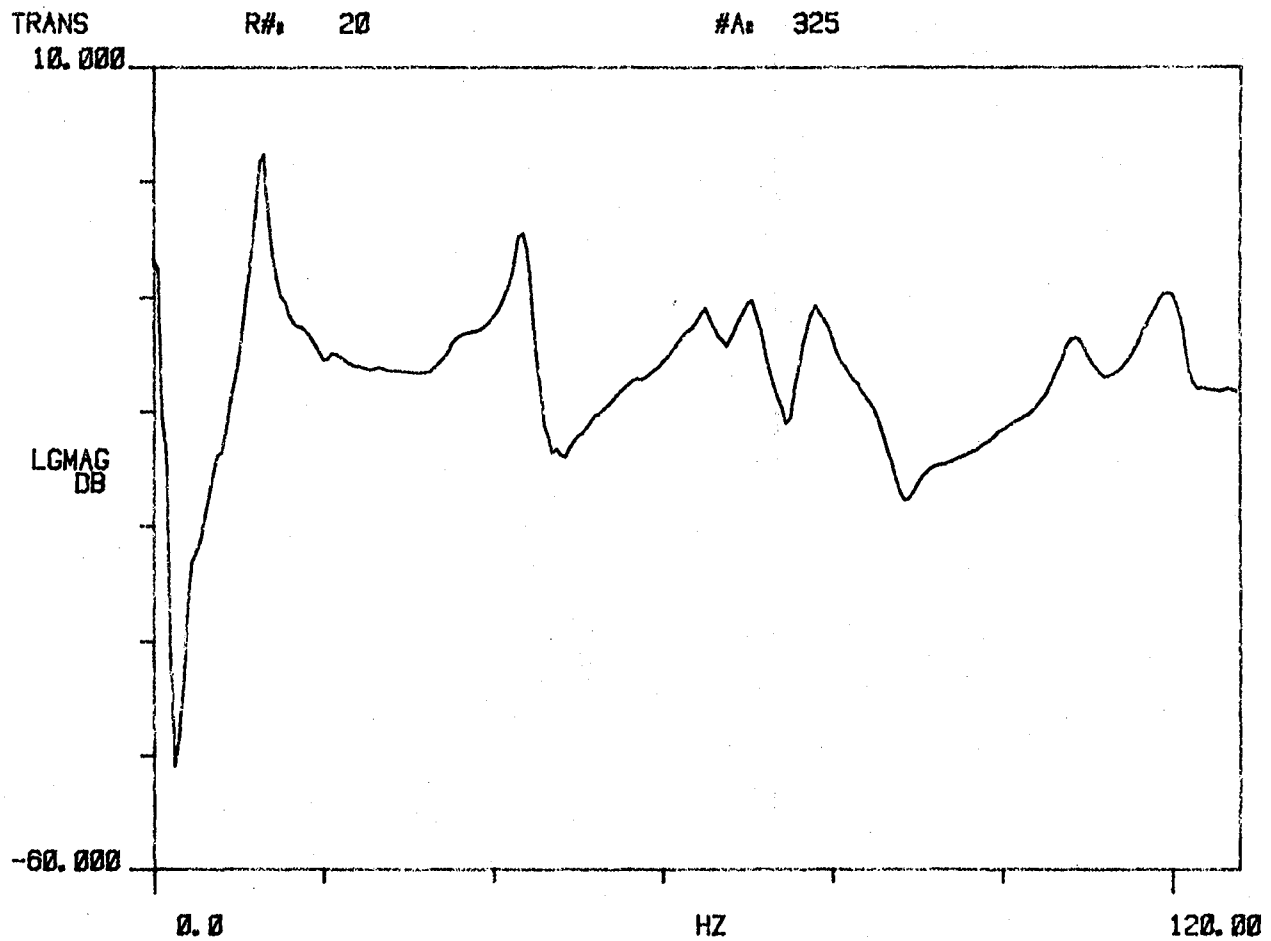
#A: 325



FM6 BLADE 35. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.458	78.275	2.494	310.776 m	1.953
2	33.453	210.189	9.398	3.158	19.842
3	43.590	273.884	1.631	711.054 m	4.468
4	64.960	408.158	2.573	1.672	10.507
5	70.760	444.599	1.915	1.355	8.514
6	77.943	489.733	1.969	1.535	9.644
7	108.229	680.024	1.695	1.835	11.527
8	120.026	754.145	980.720 m	1.177	7.396



FM6 BLADE 36. ACC. POS. #1. 11/81

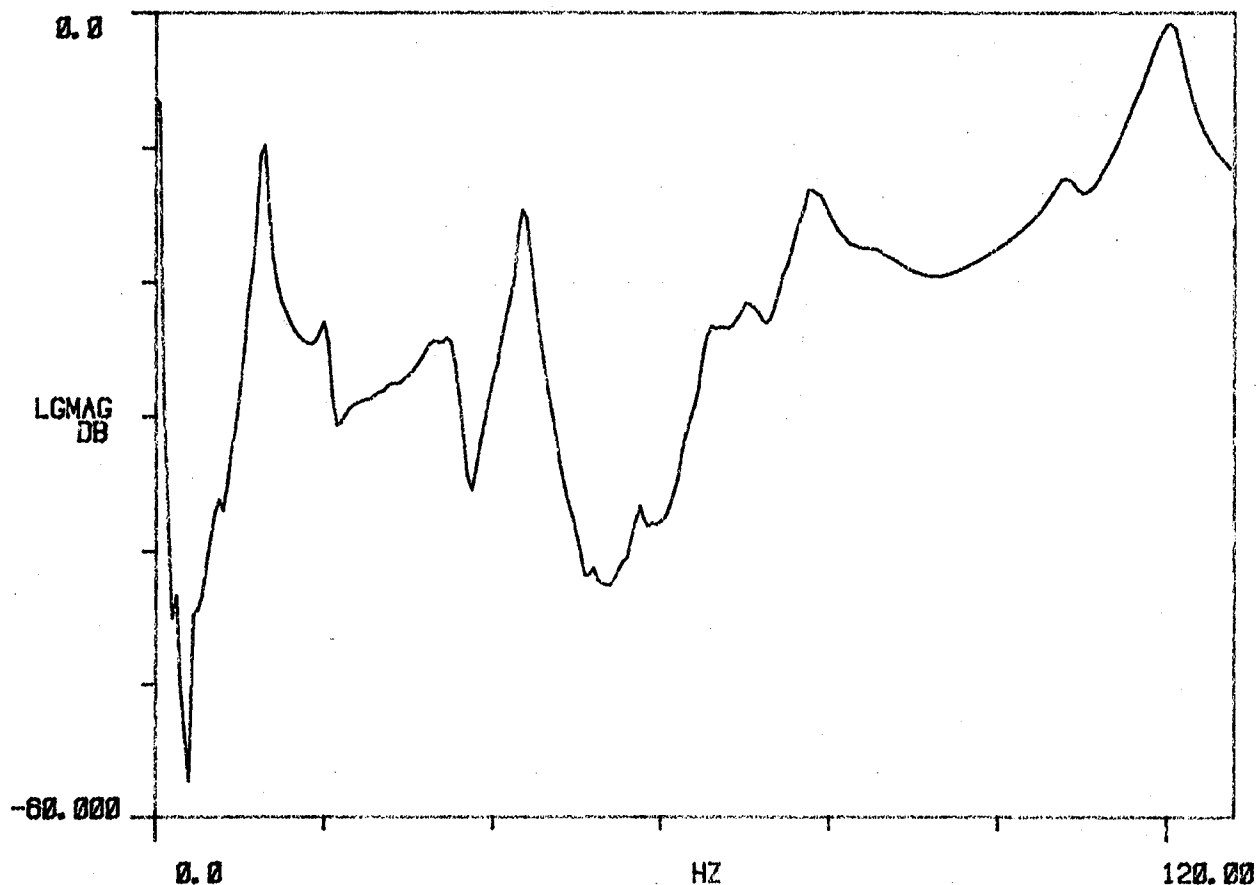
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.474	78.378	2.596	323.910 m	2.035
2	35.014	219.998	5.384	1.888	11.861
3	43.633	274.153	1.710	746.271 m	4.689
4	65.682	412.692	3.426	2.251	14.146
5	71.371	448.435	4.437	3.170	19.916
6	77.452	486.648	2.407	1.865	11.718
7	107.188	673.485	1.556	1.668	10.483
8	120.150	754.923	1.661	1.996	12.540

TRANS

R# 21

#A 325



FM6 BLADE 36. ACC. POS. #2. 11/81

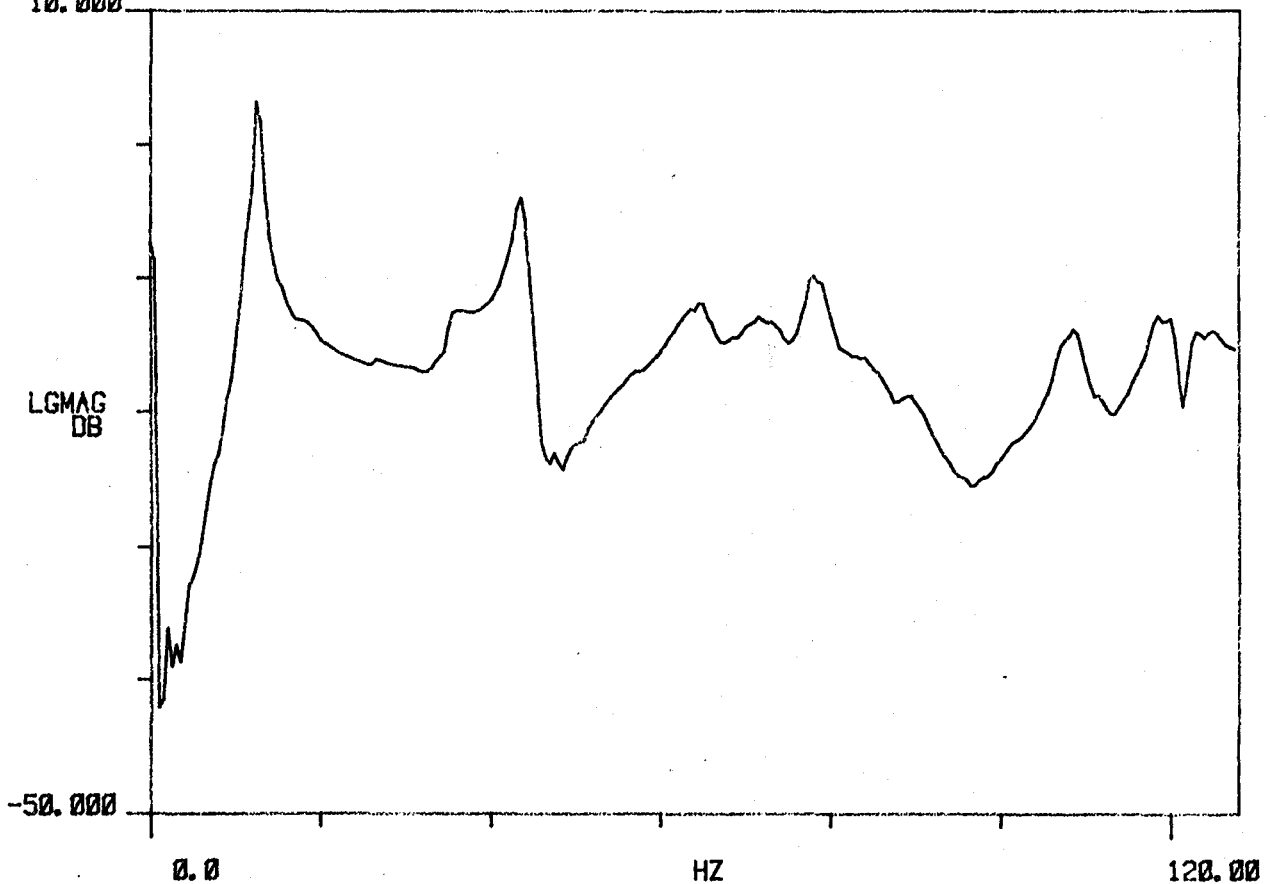
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.317	77.391	1.939	238.906 m	1.501
2	34.361	215.894	4.636	1.595	10.019
3	43.671	274.390	1.668	728.420 m	4.577
4	64.429	404.818	3.772	2.432	15.279
5	72.376	454.753	2.578	1.866	11.727
6	78.393	492.559	1.614	1.265	7.949
7	108.218	679.953	1.445	1.564	9.825
8	119.877	753.207	834.622 m	1.001	6.287

TRANS
10.000

R# 8

#A 325



FM6 BLADE 37. ACC. POS. #1. 11/81

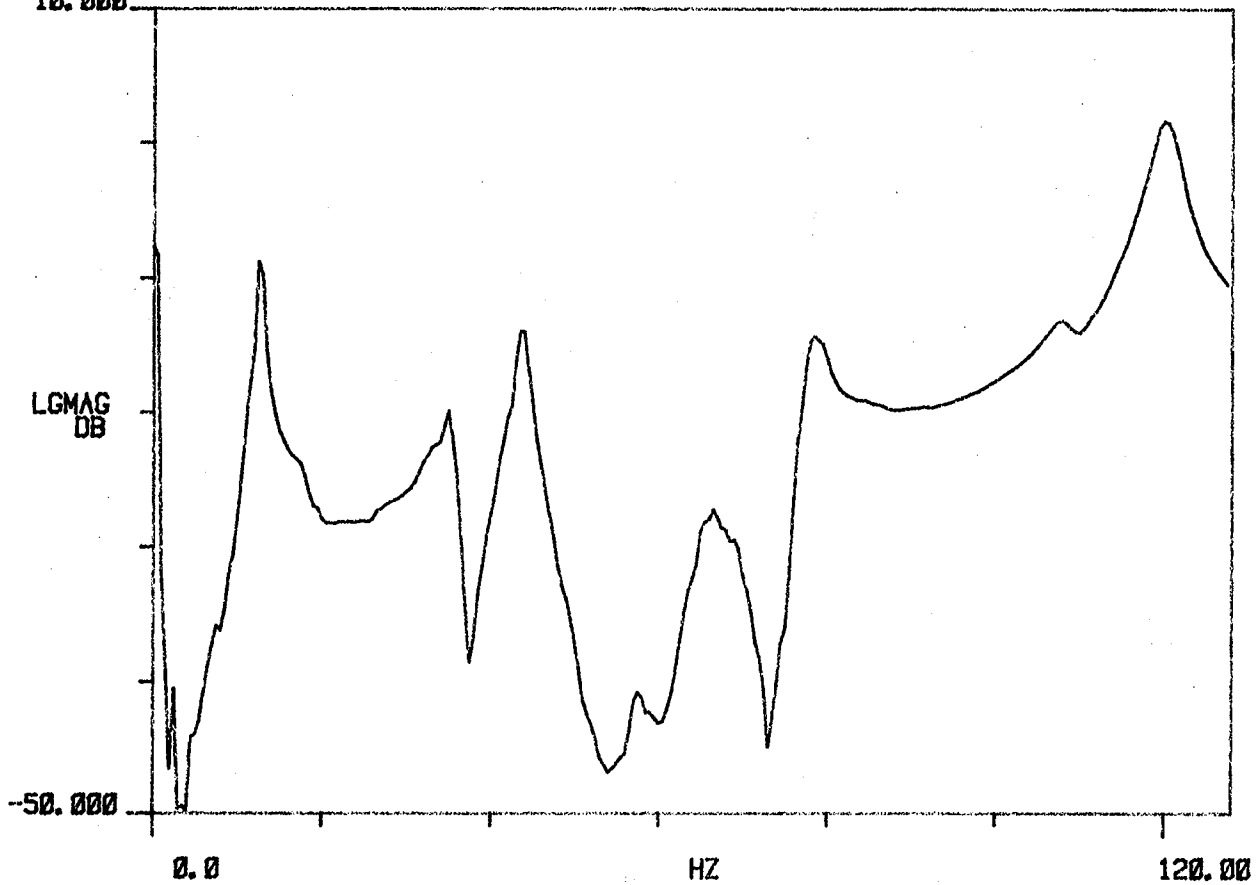
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.349	77.590	1.976	244.088 m	1.534
2	35.318	221.908	2.827	998.953 m	6.277
3	43.687	274.496	1.738	759.377 m	4.771
4	66.448	417.508	3.268	2.173	13.650
5	0.000	0.000	0.000	0.000	0.000
6	78.157	491.073	1.679	1.313	8.249
7	106.933	671.883	2.187	2.339	14.696
8	120.106	754.651	1.368	1.644	10.327

TRANS
10.000

R# 9

#A 325



FMS BLADE 37. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.642	79.432	2.617	330.975 m	2.080
2	34.213	214.968	5.665	1.941	12.198
3	43.591	273.890	2.010	876.258 m	5.506
4	64.277	403.865	4.271	2.748	17.265
5	0.000	0.000	0.000	0.000	0.000
6	77.713	488.284	1.605	1.248	7.839
7	108.342	680.734	1.779	1.928	12.115
8	119.553	751.175	873.786 m	1.045	6.564

TRANS

R# 10

#A 325

10.000

LGMAG
DB

-50.000

0.0

HZ

120.00

FM6 BLADE 38. ACC. POS. #1. 11/81

FREQUENCY AND DAMPING

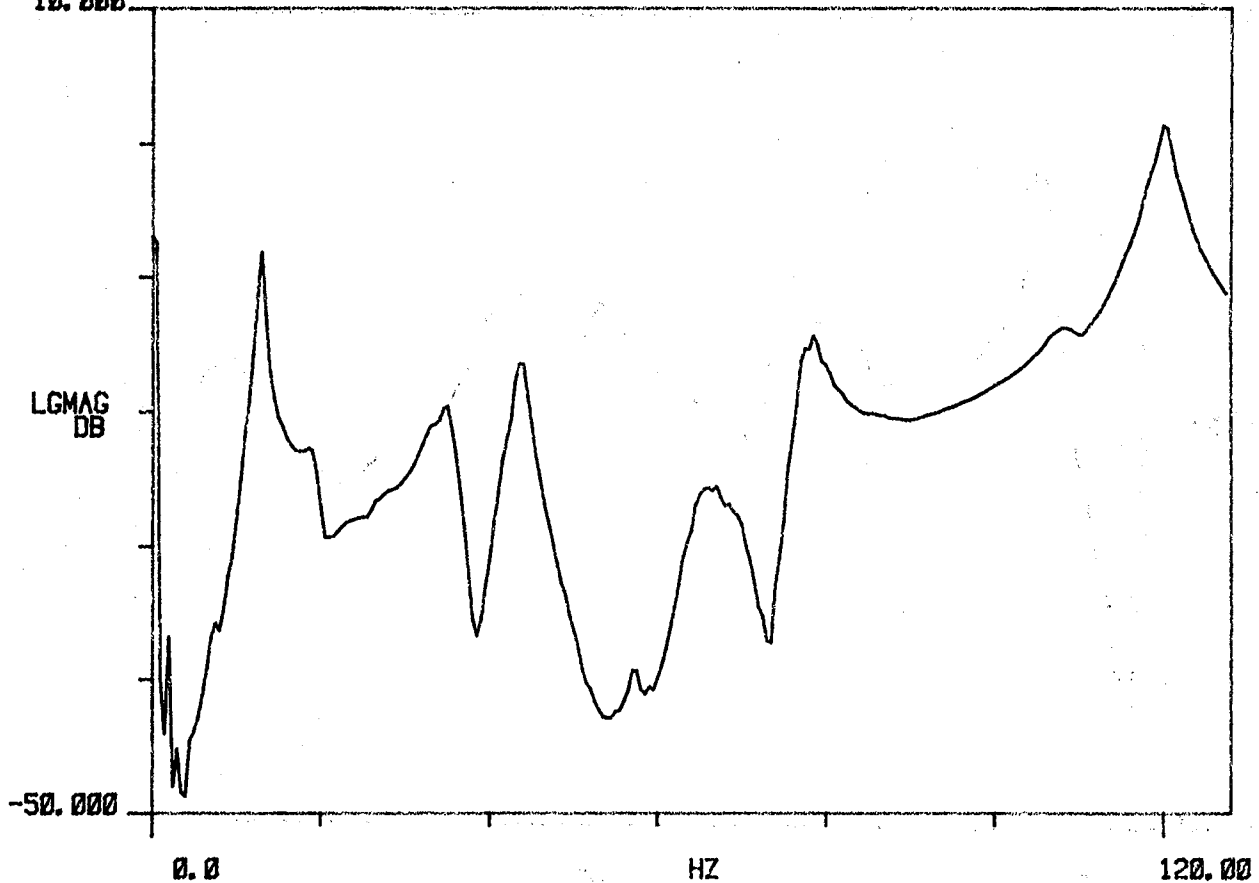
MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.655	79.515	2.504	316.961 m	1.992
2	35.153	220.875	4.066	1.431	8.989
3	43.647	274.240	2.094	914.163 m	5.744
4	65.868	413.860	4.166	2.747	17.257
5	0.000	0.000	0.000	0.000	0.000
6	77.632	487.774	1.924	1.494	9.388
7	106.446	668.818	1.786	1.902	11.949
8	119.978	753.846	1.268	1.522	9.561

TRANS

R#: 11

#A: 325

10.000



FM6 BLADE 38. ACC. POS. #2. 11/81

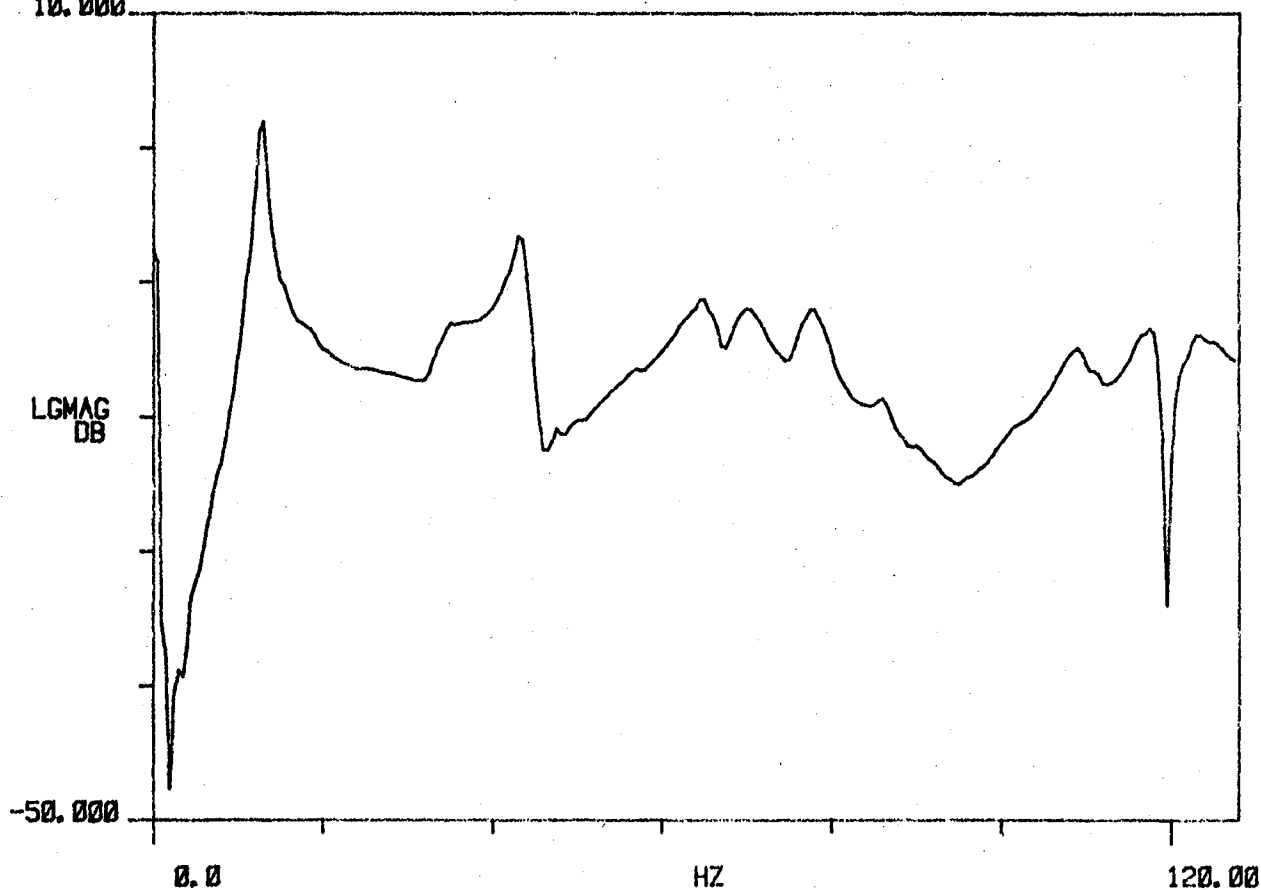
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.540	78.790	3.130	392.706	2.467
2	33.476	210.333	7.420	2.491	15.649
3	43.511	273.390	2.118	921.975	5.793
4	65.001	408.412	3.521	2.290	14.388
5	70.403	442.354	2.690	1.894	11.903
6	78.102	490.728	2.348	1.834	11.523
7	108.517	681.835	2.045	2.220	13.948
8	118.102	742.060	977.055	1.154	7.251

TRANS
10.000

R# 35

#A 325



FM6 BLADE 39. ACC. POS. #1. 11/81

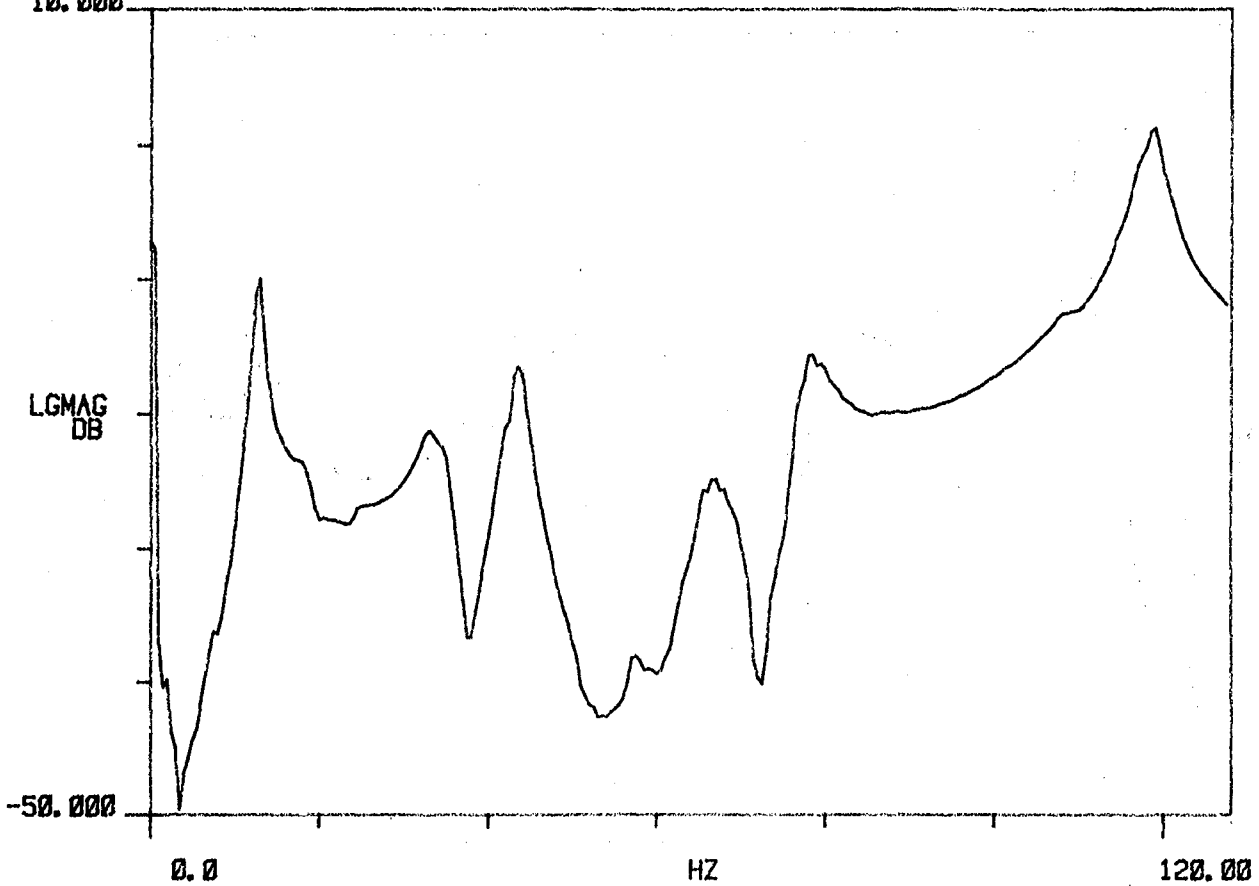
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.586	79.079	3.253	409.644	2.574
2	34.000	213.628	5.624	1.915	12.034
3	43.542	273.584	2.161	941.363	5.915
4	67.026	421.138	3.070	2.058	12.934
5	0.000	0.000	0.000	0.000	0.000
6	77.715	488.299	2.357	1.832	11.512
7	105.108	660.411	2.301	2.419	15.199
8	118.514	744.646	1.381	1.637	10.283

TRANS
10.000

R# 36

#A 325



FM6 BLADE 39. ACC. POS. #2. 11/81

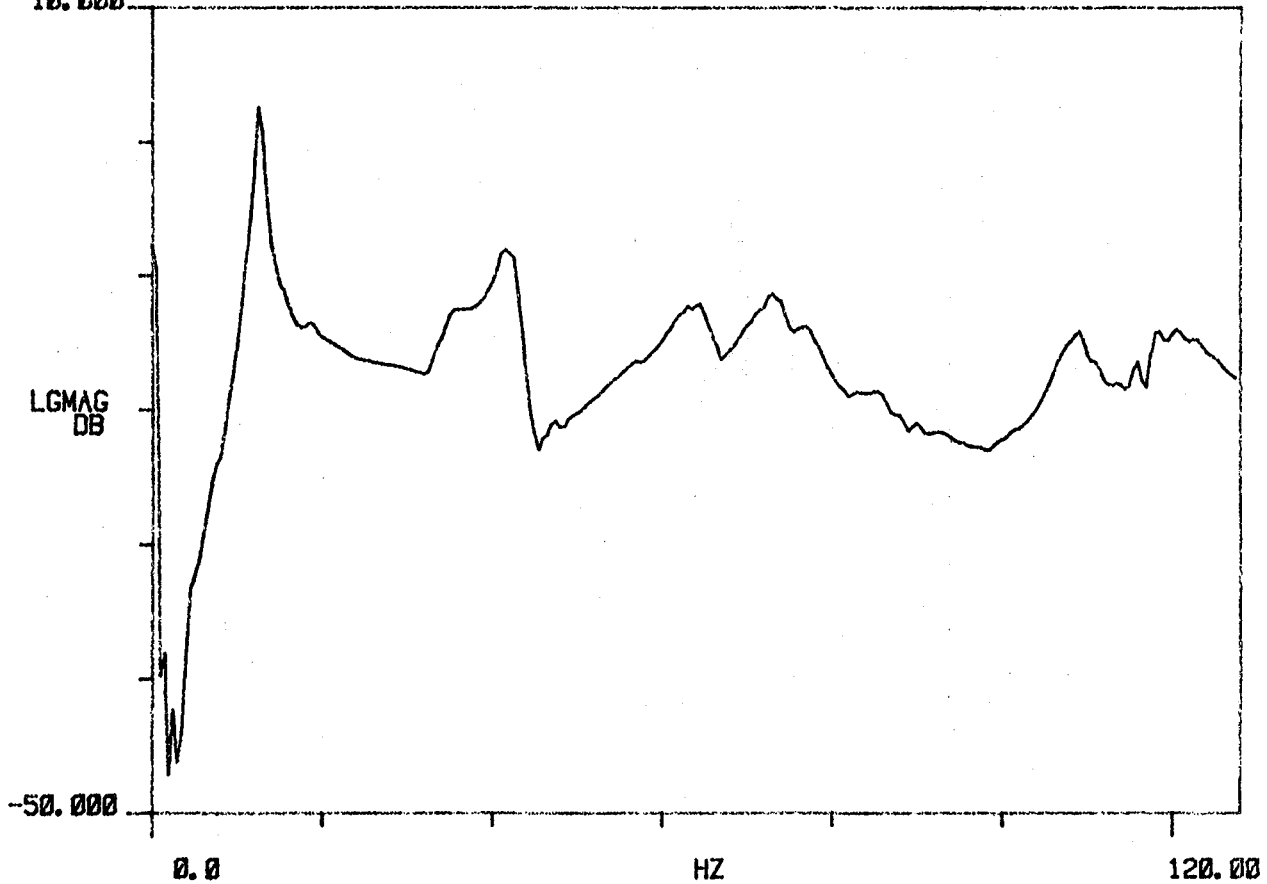
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	ζ	HZ	R/S
1	12.360	77.661	2.885	356.747	2.242
2	33.775	212.212	7.196	2.437	15.310
3	42.210	265.213	2.955	1.248	7.839
4	63.950	401.811	3.797	2.430	15.267
5	73.291	460.499	2.758	2.022	12.705
6	78.410	492.663	3.770	2.958	18.588
7	108.572	682.176	2.308	2.506	15.746
8	118.658	745.551	2.057	2.442	15.342

TRANS
10.000

R# 4

#A 325



FM6 BLADE 41. ACC. POS. #1. 11/81

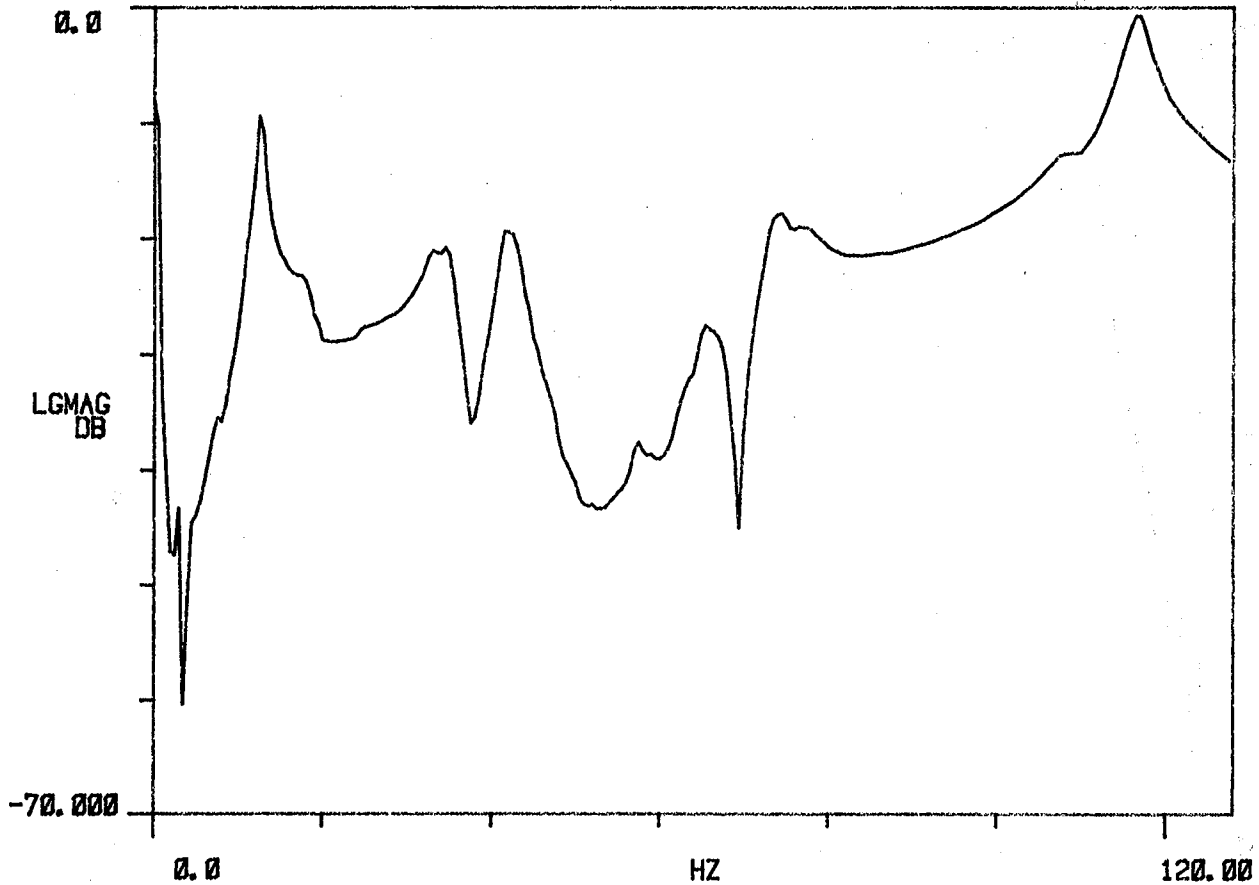
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.357	77.642	2.995	370.266	2.326
2	34.572	217.223	4.746	1.643	10.321
3	42.047	264.186	2.560	1.077	6.765
4	66.459	417.577	2.241	1.490	9.361
5	73.363	460.951	2.369	1.739	10.924
6	75.800	476.264	3.893	2.953	18.556
7	105.270	661.431	2.135	2.248	14.127
8	116.507	732.035	1.429	1.665	10.460

TRANS

R# 5

#A 325



FM6 BLADE 41. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

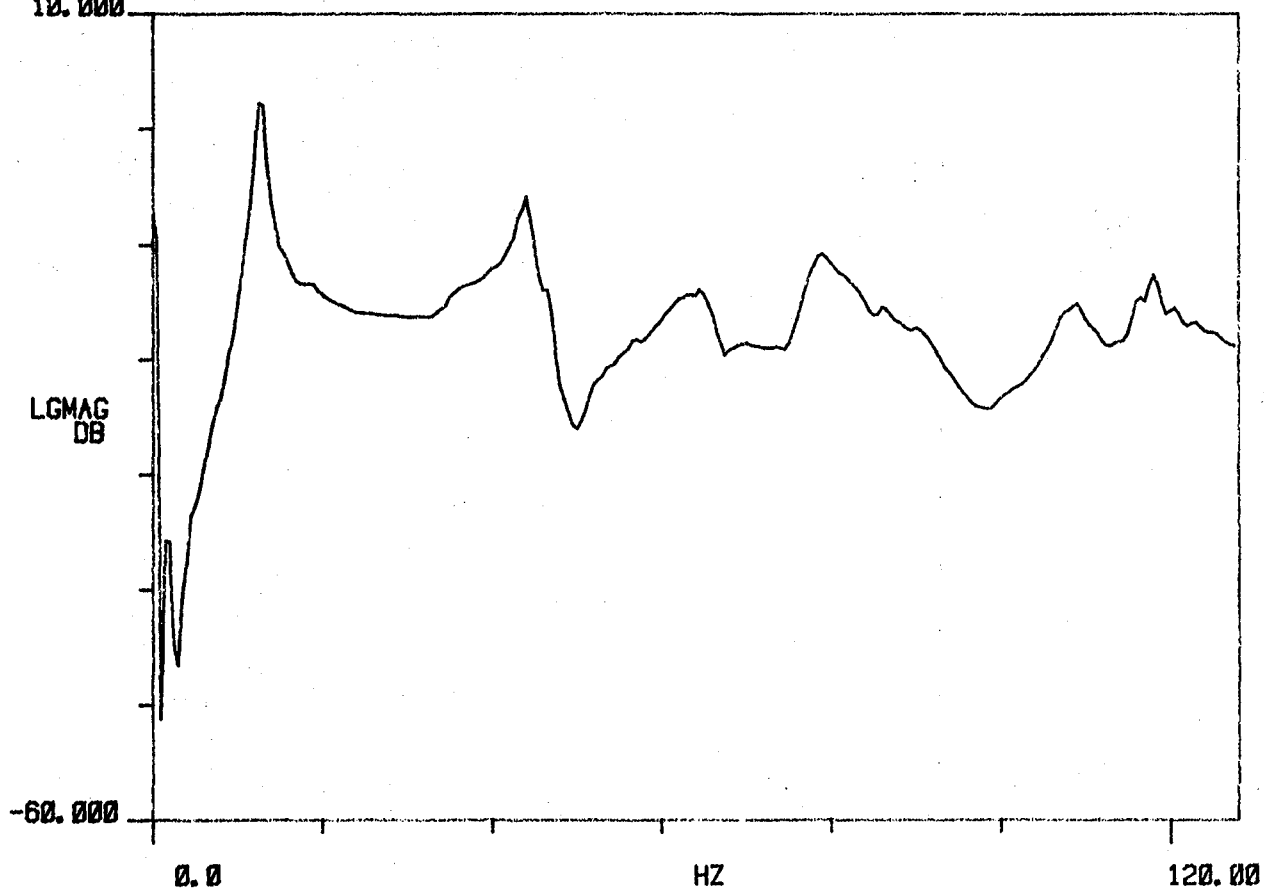
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.458	78.277	2.799	348.867	2.192
2	34.618	217.514	11.365	3.960	24.881
3	44.097	277.072	2.546	1.123	7.056
4	64.703	406.539	4.230	2.740	17.214
5	0.000	0.000	0.000	0.000	0.000
6	78.506	493.265	3.049	2.395	15.047
7	108.456	681.452	2.508	2.721	17.095
8	117.641	739.160	1.056	1.242	7.803

TRANS

R# 37

#A 325

10.000



FM6 BLADE 44. ACC. POS. #1. 11/81

FREQUENCY AND DAMPING

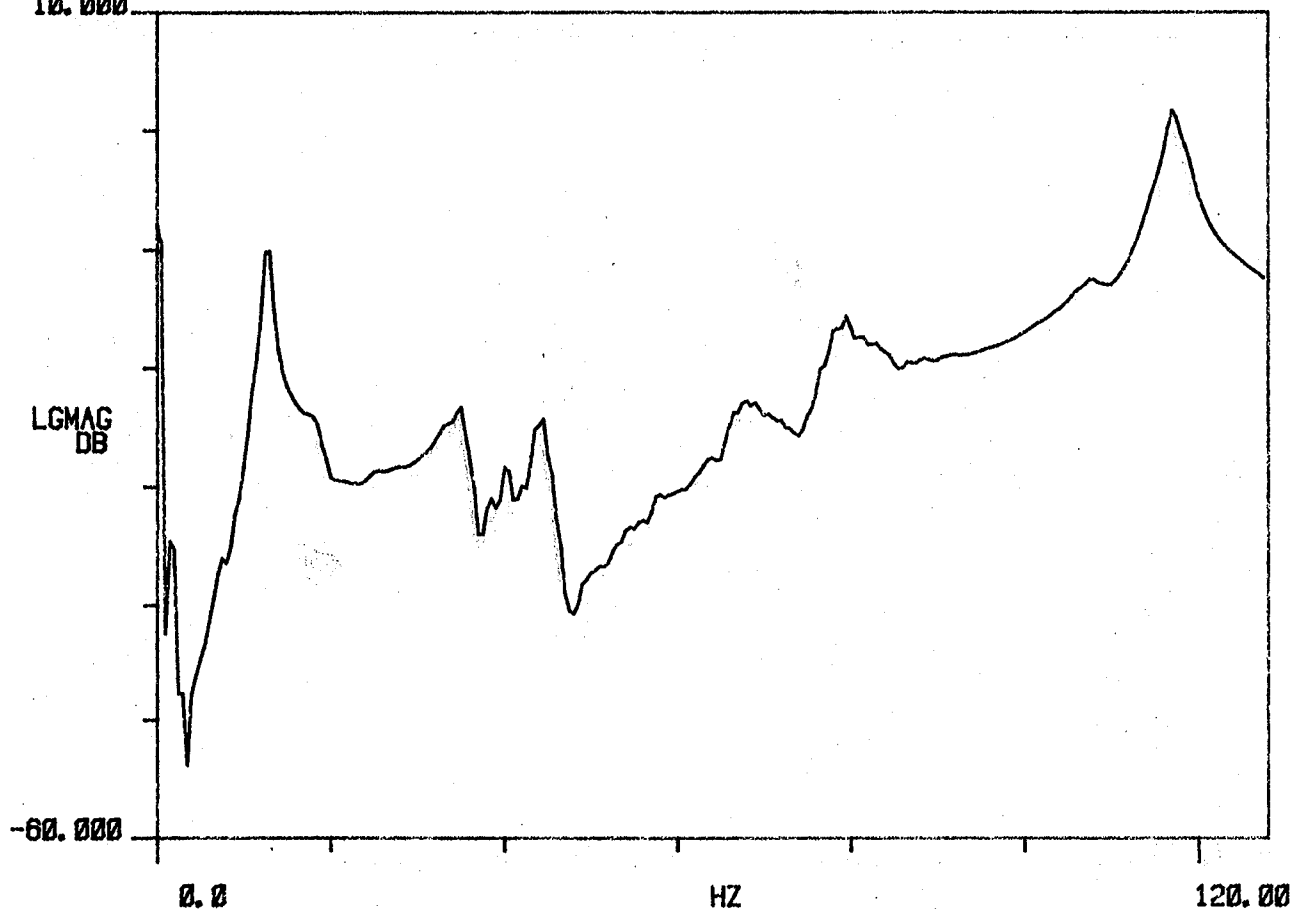
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.460	78.291	2.825	352.123	2.212
2	35.172	220.995	3.775	1.329	8.348
3	44.488	279.526	1.706	759.044	4.769
4	67.812	426.073	4.466	3.032	19.049
5	0.000	0.000	0.000	0.000	0.000
6	78.434	492.813	2.788	2.188	13.747
7	106.076	666.493	1.304	1.384	8.694
8	117.232	736.591	1.162	1.362	8.558

TRANS

10.000

R# 38

#A: 325



FM6 BLADE 44. ACC. POS. #2. 11/81

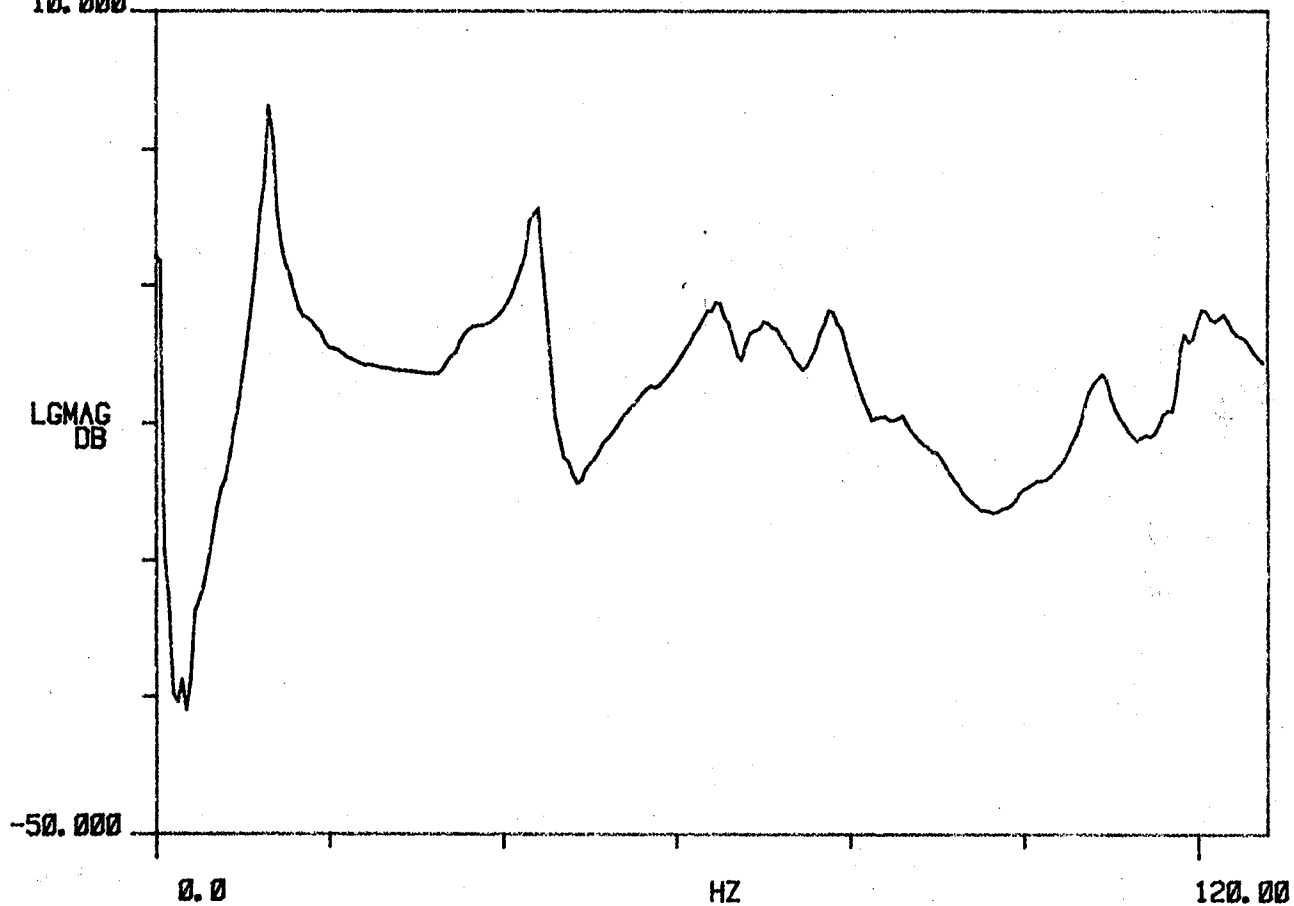
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.772	80.252	2.117	270.448	1.699
2	34.830	218.843	8.898	3.112	19.551
3	43.827	275.376	1.690	740.690	4.654
4	64.579	405.764	3.132	2.023	12.713
5	70.887	445.396	3.615	2.564	16.112
6	78.219	491.463	2.052	1.606	10.088
7	108.529	681.911	1.718	1.865	11.715
8	120.043	754.250	1.410	1.692	10.633

TRANS
10.000

R# 2

#A 325



FM6 BLADE 45. ACC. POS. #1. 11/81

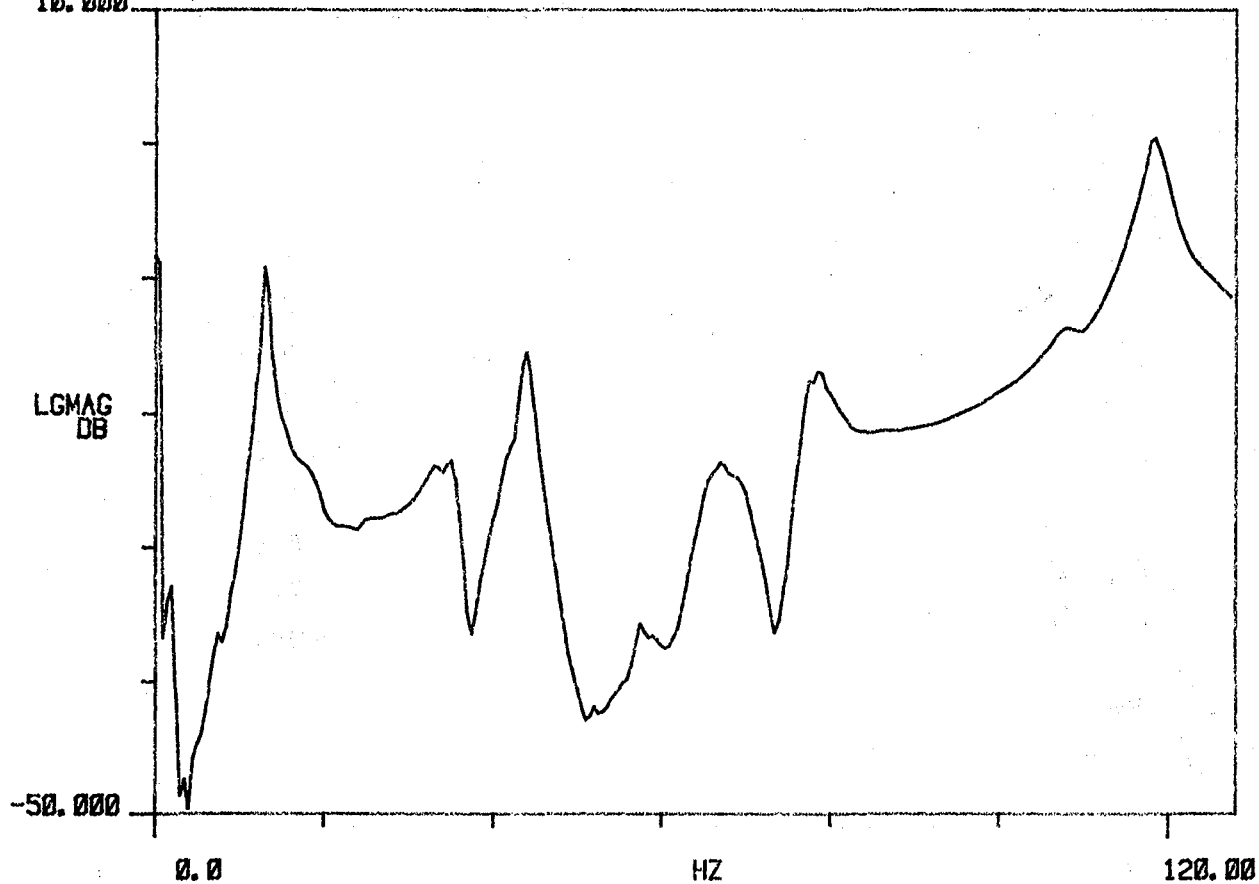
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.789	80.358	2.123	271.549 m	1.706
2	35.280	221.670	4.578	1.617	10.159
3	43.886	275.742	1.806	792.716 m	4.981
4	67.252	422.557	3.890	2.618	16.451
5	0.000	0.000	0.000	0.000	0.000
6	77.622	487.715	2.012	1.562	9.815
7	106.034	666.232	1.099	1.166	7.324
8	118.399	743.925	1.256	1.488	9.347

TRANS
10.000

R# 3

#A 325



FM6 BLADE 45. ACC. POS. #2. 11/81

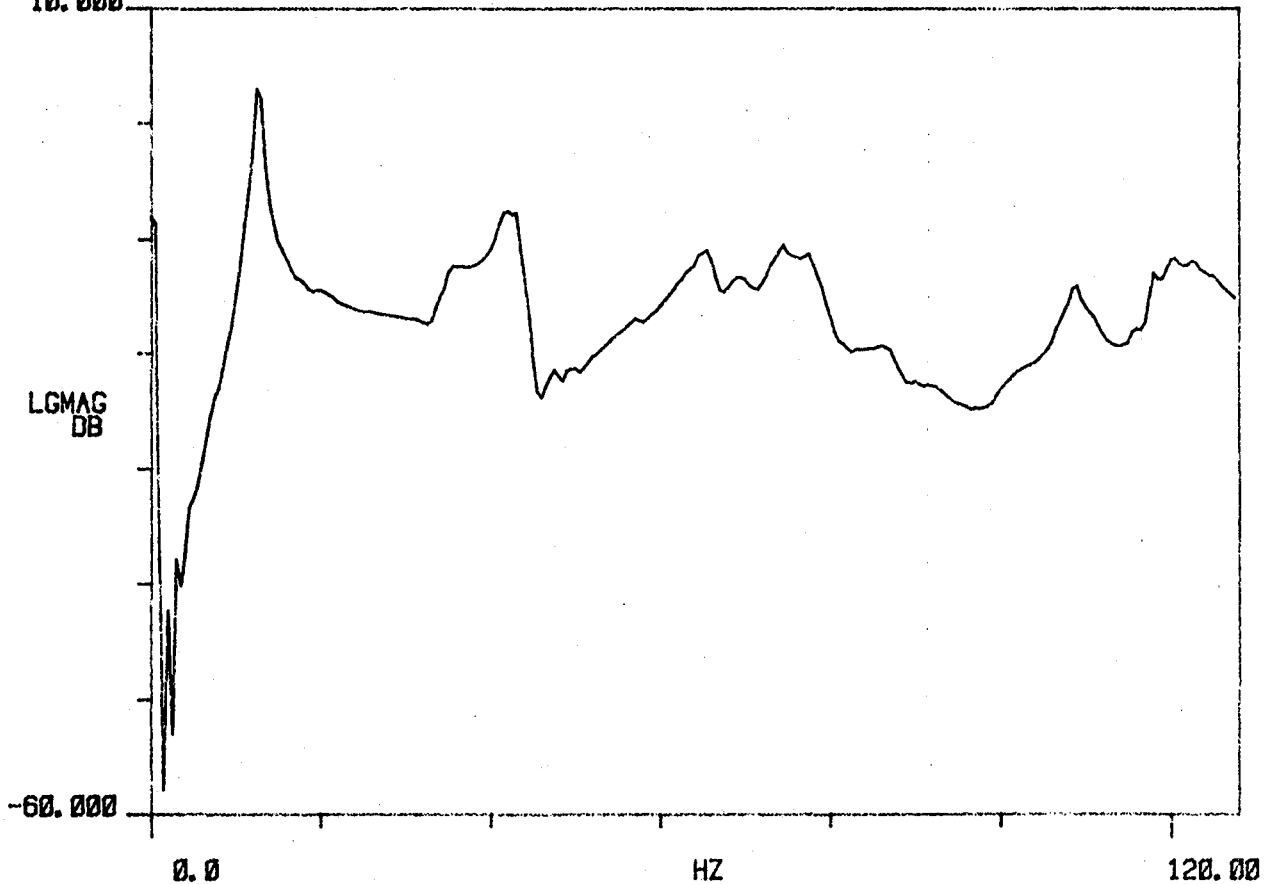
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.375	77.755	2.204	272.762 m	1.714
2	34.195	214.853	5.574	1.909	11.994
3	42.653	267.999	2.989	1.275	8.013
4	65.420	411.048	2.249	1.471	9.245
5	68.612	431.101	-143.018 m	-98.128 m	-616.553 m
6	76.318	479.520	4.054	3.097	19.457
7	108.808	683.661	1.819	1.979	12.435
8	119.879	753.223	1.415	1.697	10.660

TRANS
10.000

R# 31

#A 325



FM6 BLADE 46. ACC. POS. #1. 11/81

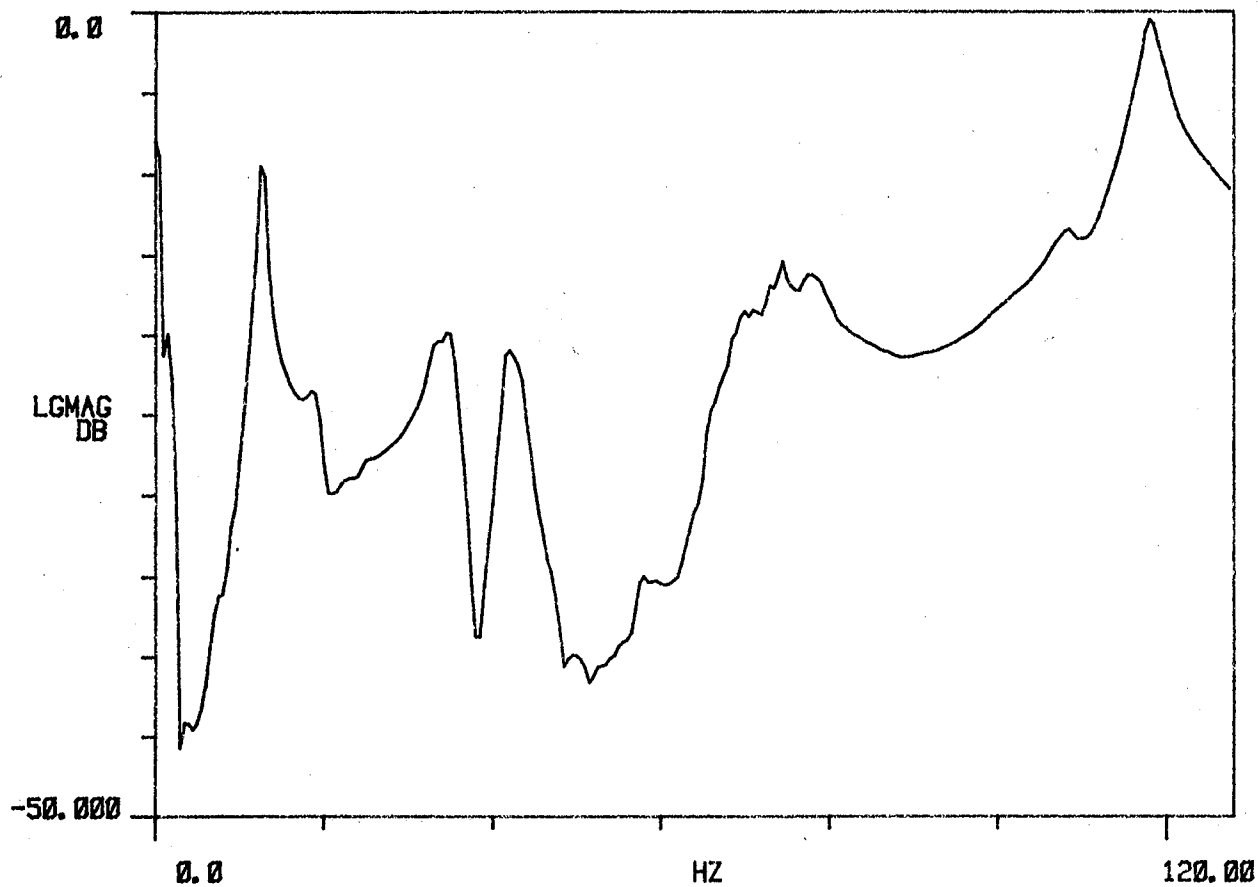
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.381	77.794	2.280	282.372	1.774
2	34.763	218.421	4.168	1.450	9.111
3	42.242	265.415	2.584	1.092	6.860
4	0.000	0.000	0.000	0.000	0.000
5	70.150	440.764	2.709	1.901	11.946
6	74.539	468.343	4.308	3.214	20.195
7	106.852	671.368	1.286	1.374	8.633
8	117.974	741.251	1.418	1.673	10.515

TRANS

R#: 32

#A: 325



FM6 BLADE 46. ACC. POS. #2. 11/81

FREQUENCY AND DAMPING

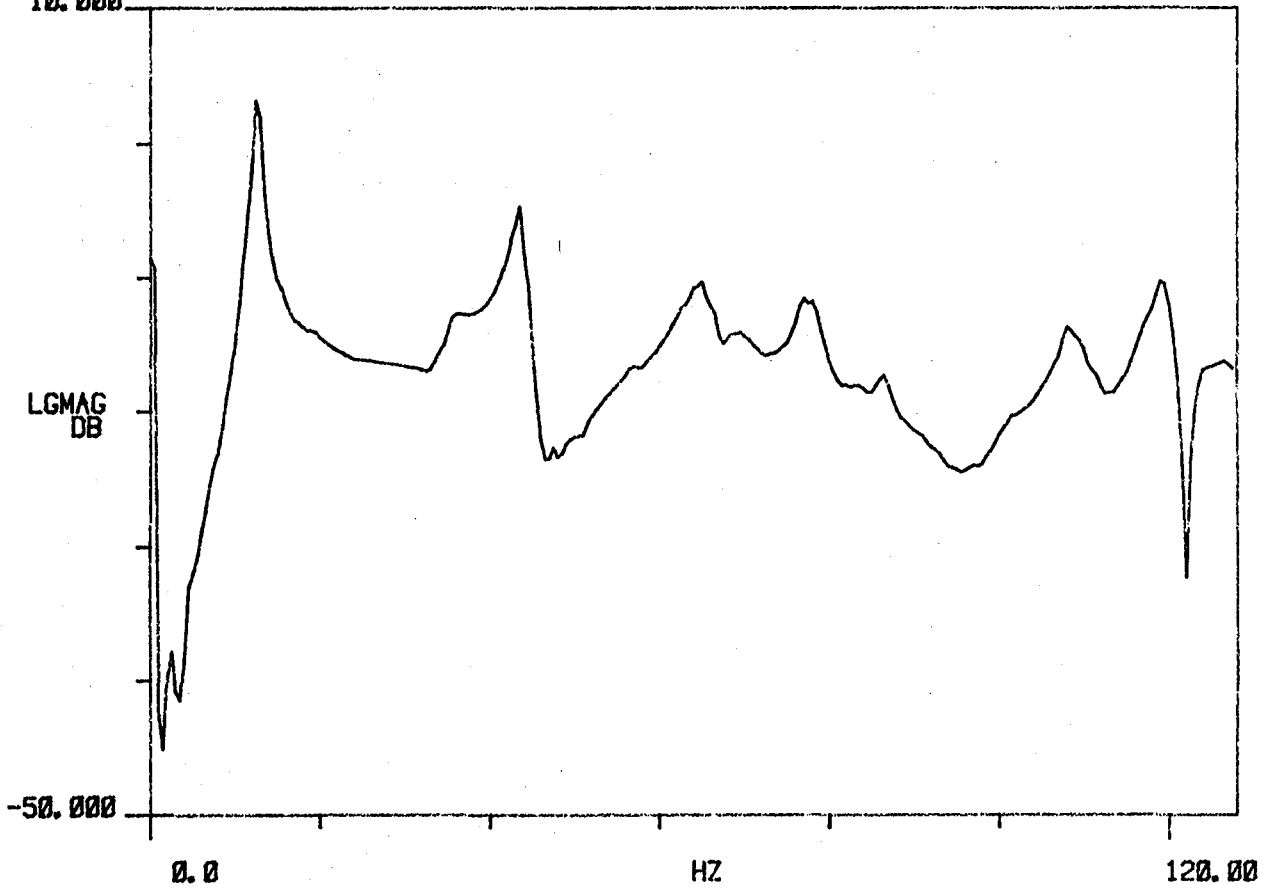
MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.370	77.725	2.484	307.357 m	1.931
2	34.214	214.974	5.440	1.864	11.712
3	43.591	273.890	1.831	798.153 m	5.015
4	64.868	407.576	3.009	1.953	12.270
5	69.134	434.384	-286.719 m	-198.222 m	-1.245
6	77.829	489.014	1.829	1.424	8.944
7	108.514	681.814	1.619	1.757	11.041
8	119.625	751.627	1.041	1.245	7.822

TRANS

R# 33

#A 325

10.000



FM6 BLADE 47. ACC. POS. #1. 11/81

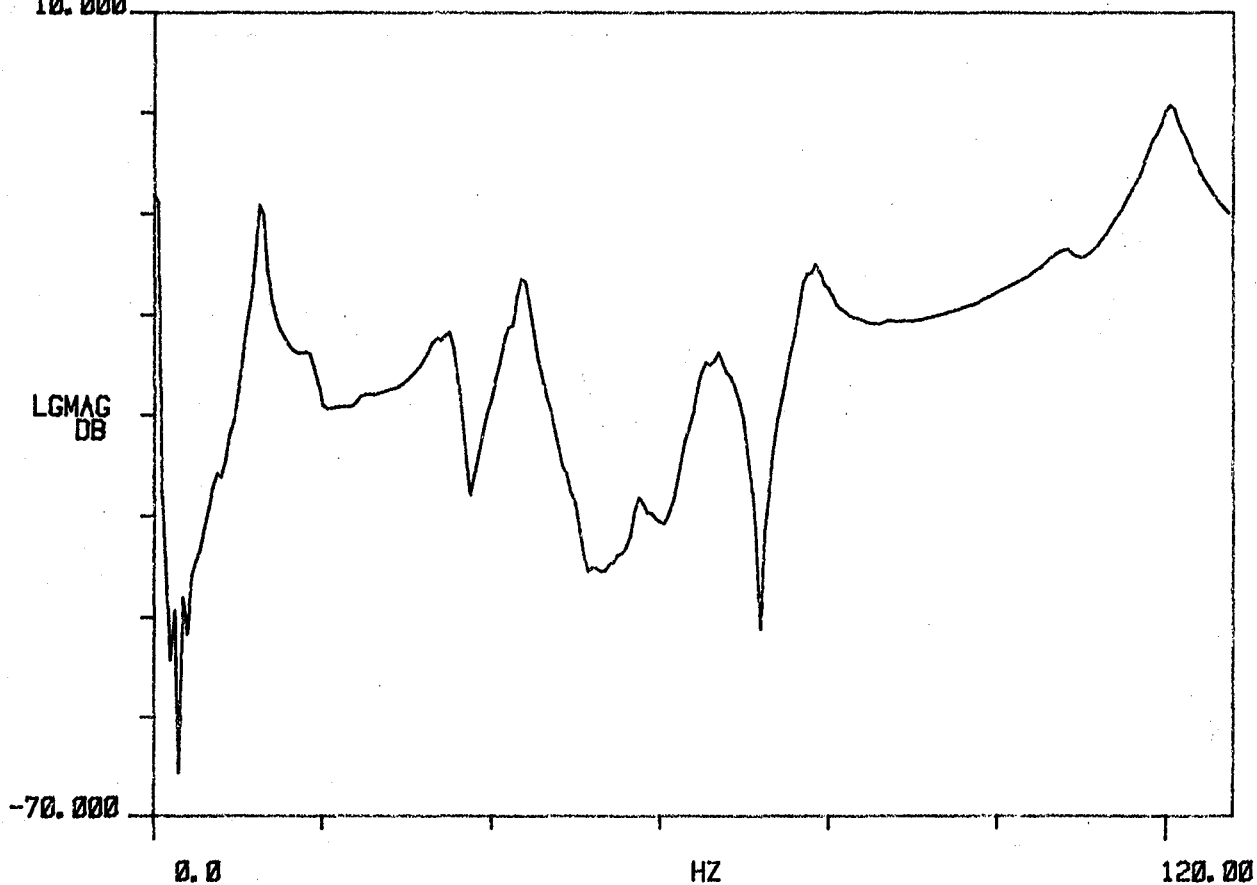
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	ζ	HZ	R/S
1	12.375	77.751	2.492	308.477	1.938
2	35.080	220.412	4.145	1.455	9.144
3	43.677	274.431	2.052	896.486	5.633
4	66.640	418.711	2.794	1.863	11.705
5	0.000	0.000	0.000	0.000	0.000
6	77.681	488.086	2.041	1.586	9.966
7	107.189	673.491	1.630	1.748	10.981
8	120.428	756.670	1.575	1.897	11.919

TRANS
10.000

R#: 34

#A: 325



FM6 BLADE 47. ACC. POS. #2. 11/81

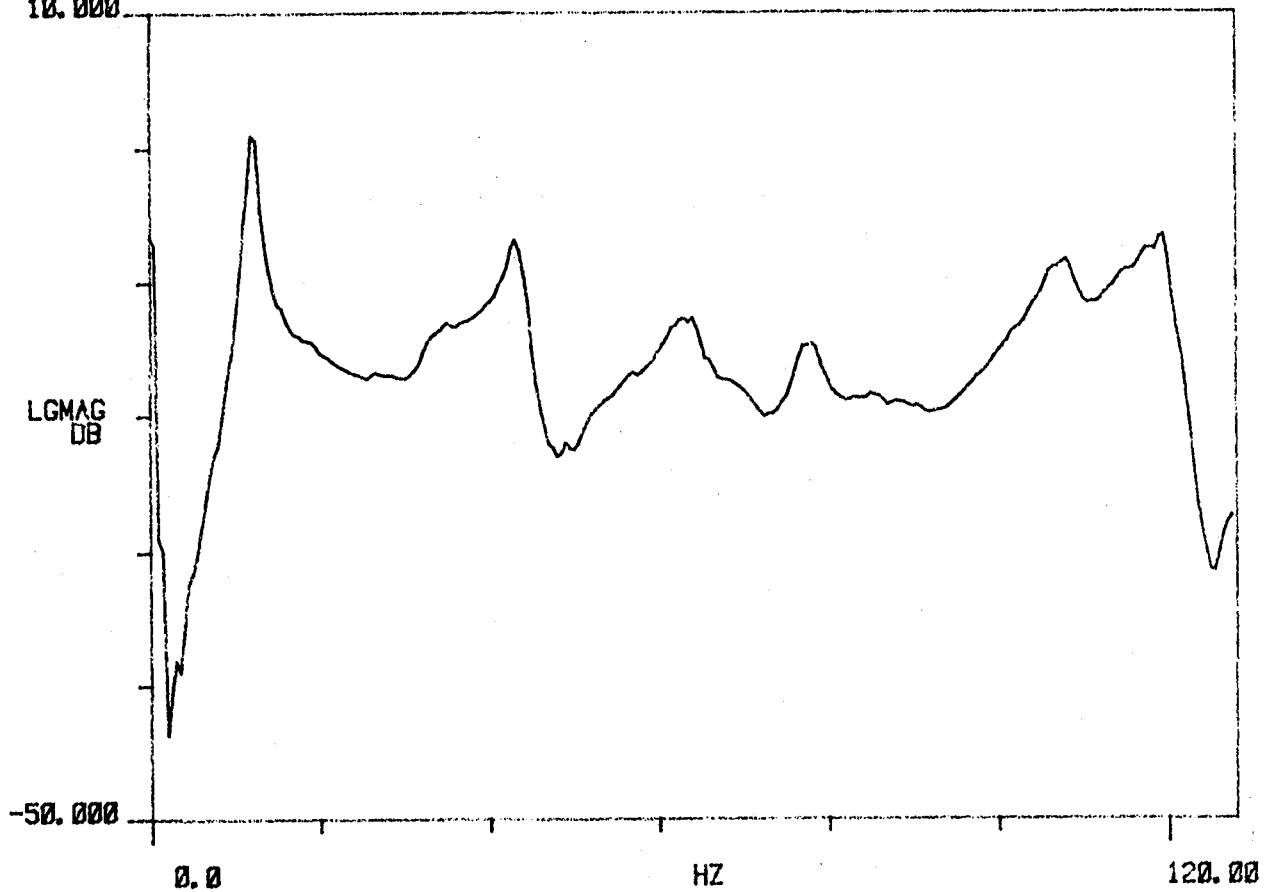
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.910	74.831	3.482	414.897	2.607
2	32.846	206.376	8.377	2.761	17.348
3	43.480	273.194	2.600	1.131	7.106
4	63.403	398.371	3.642	2.311	14.519
5	0.000	0.000	0.000	0.000	0.000
6	77.626	487.741	1.655	1.285	8.072
7	107.517	675.548	2.323	2.498	15.696
8	119.495	750.812	1.710	2.044	12.840

TRANS
10.000

R#: 16

#A: 325



FM6 BLADE 48. ACC. POS. #1. 11/81
154

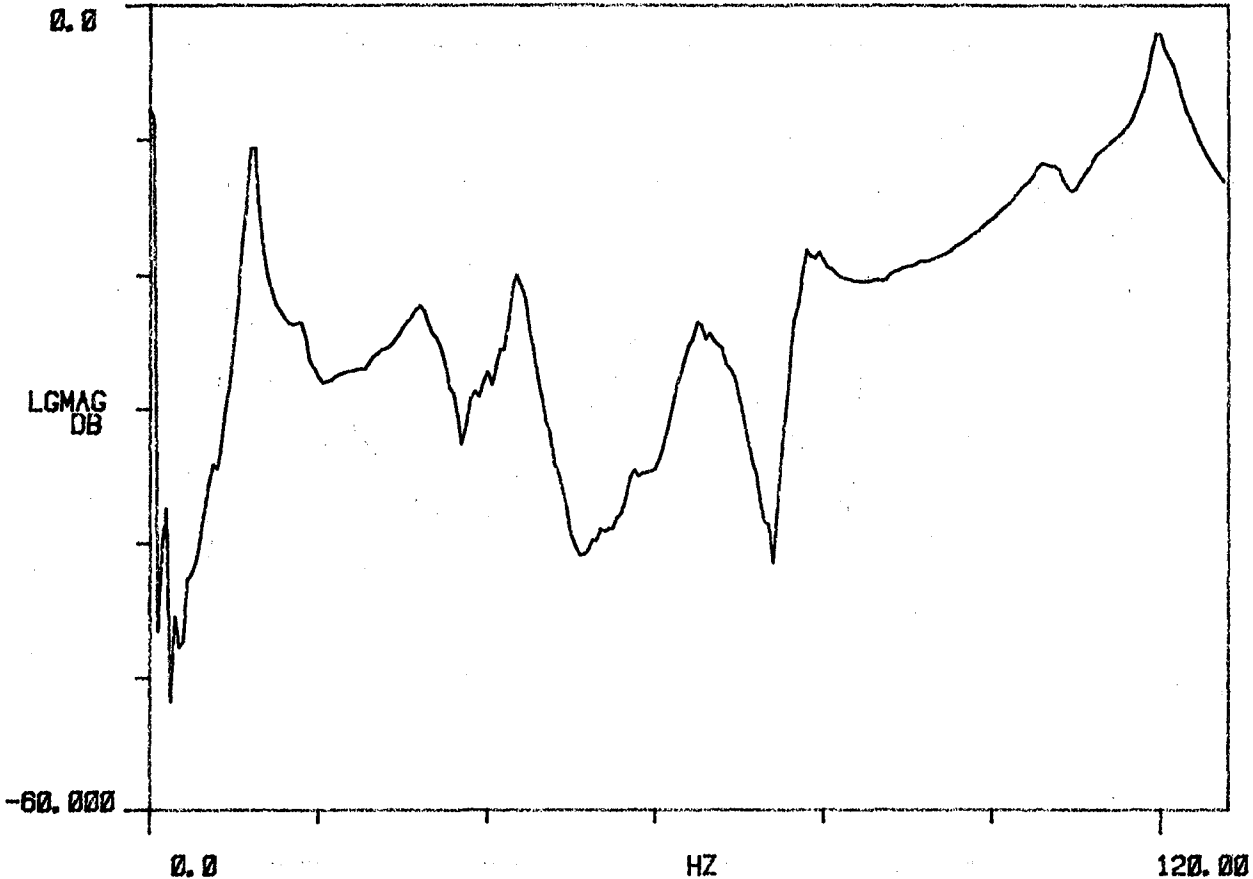
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.928	74.947	3.585	427.942	2.689
2	32.307	202.990	7.472	2.421	15.210
3	43.631	274.139	2.511	1.096	6.885
4	65.552	411.873	4.084	2.679	16.835
5	0.000	0.000	0.000	0.000	0.000
6	77.622	487.711	2.374	1.843	11.581
7	106.275	667.744	2.337	2.484	15.610
8	119.918	753.464	1.465	1.757	11.039

TRANS

R# 17

#A 325



FM6 BLADE 48, ACC. POS. #2, 11/81

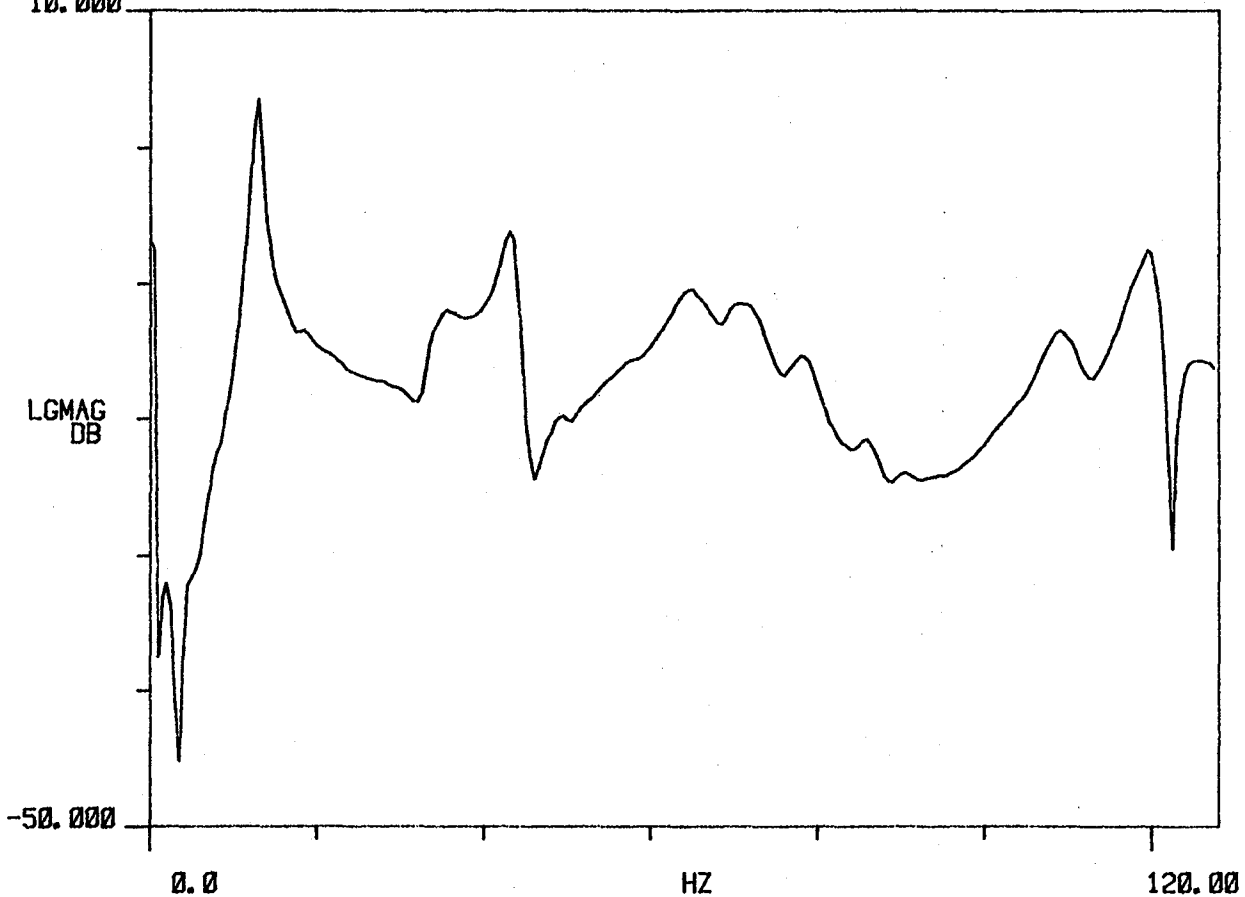
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.642	79.435	2.819	356.481 m	2.240
2	33.755	212.087	5.741	1.941	12.196
3	43.338	272.301	1.915	830.264 m	5.217
4	64.382	404.524	3.927	2.530	15.896
5	72.082	452.904	3.768	2.718	17.078
6	79.594	500.105	2.325	1.851	11.630
7	108.914	684.328	2.022	2.203	13.840
8	119.815	752.820	1.247	1.494	9.388

TRANS
10.000

R# 1

#A 325



FM5 BLADE 49. ACC. POS. #1. 10/81

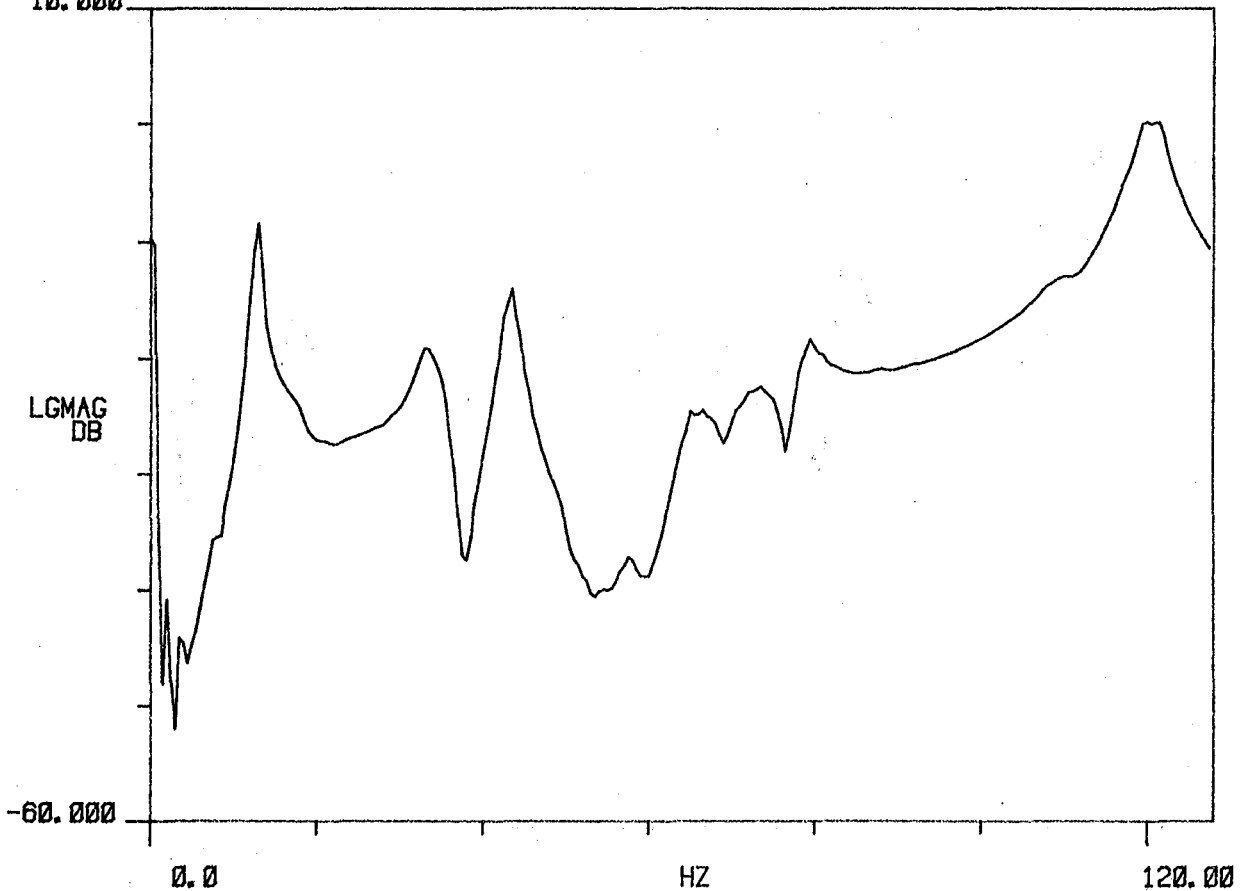
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.664	79.567	2.877	364.501 m	2.290
2	33.736	211.971	4.918	1.661	10.438
3	43.312	272.135	1.932	837.098 m	5.260
4	65.035	408.627	3.727	2.426	15.240
5	72.929	458.226	3.064	2.235	14.046
6	78.587	493.777	1.903	1.496	9.398
7	105.595	663.473	1.773	1.872	11.763
8	120.490	757.063	1.620	1.952	12.264

TRANS
10.000

R# 2

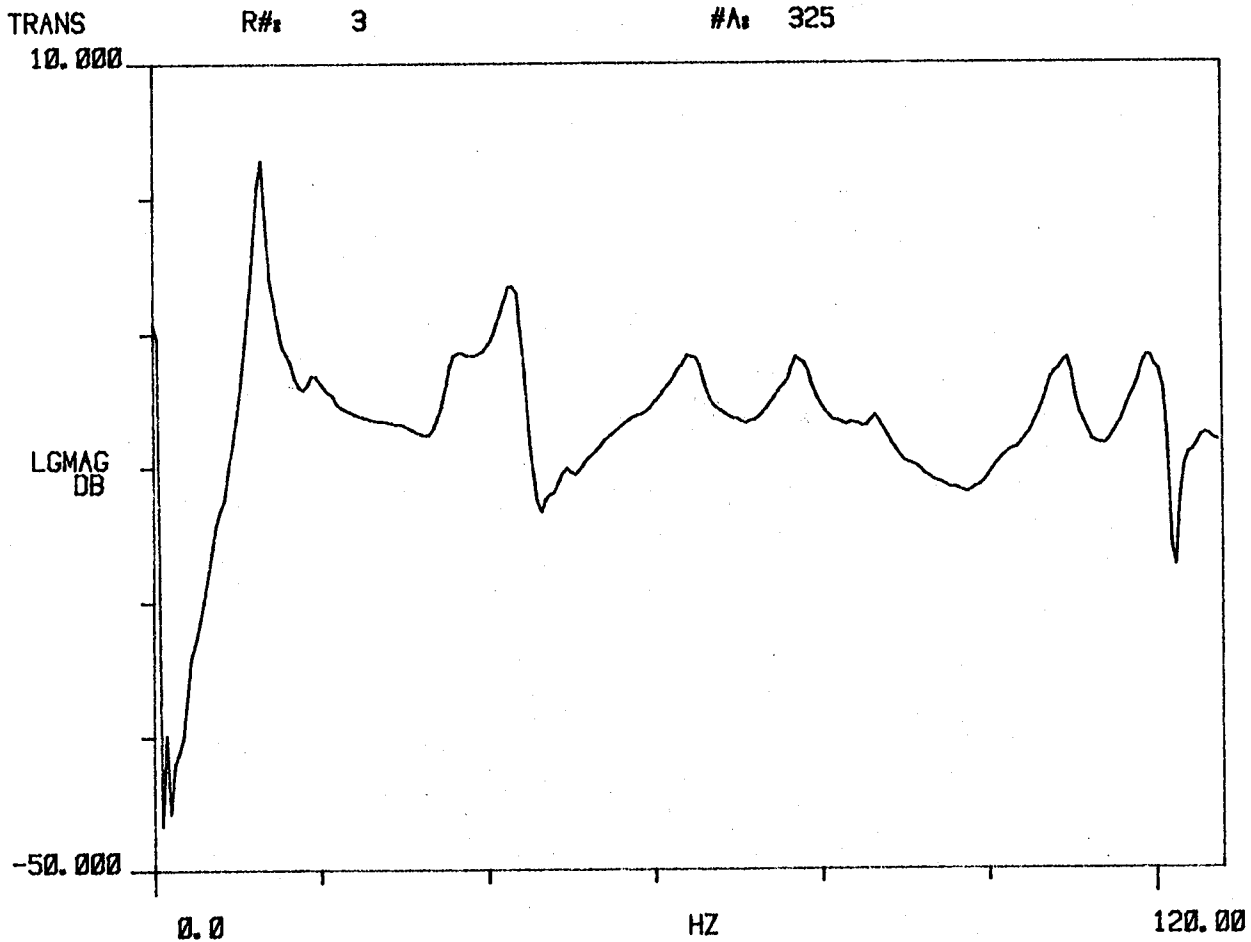
#A 325



FM5 BLADE 49. ACC. POS. #2. 10/81

FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.673	79.626	3.299	418.307 m	2.628
2	35.136	220.767	5.577	1.963	12.332
3	43.256	271.786	2.394	1.036	6.509
4	64.714	406.609	3.114	2.016	12.666
5	0.000	0.000	0.000	0.000	0.000
6	77.687	488.120	2.169	1.685	10.590
7	109.098	685.486	1.503	1.640	10.305
8	120.232	755.439	980.026 m	1.178	7.404



FM5 BLADE 50. ACC. POS. #1. 10/81

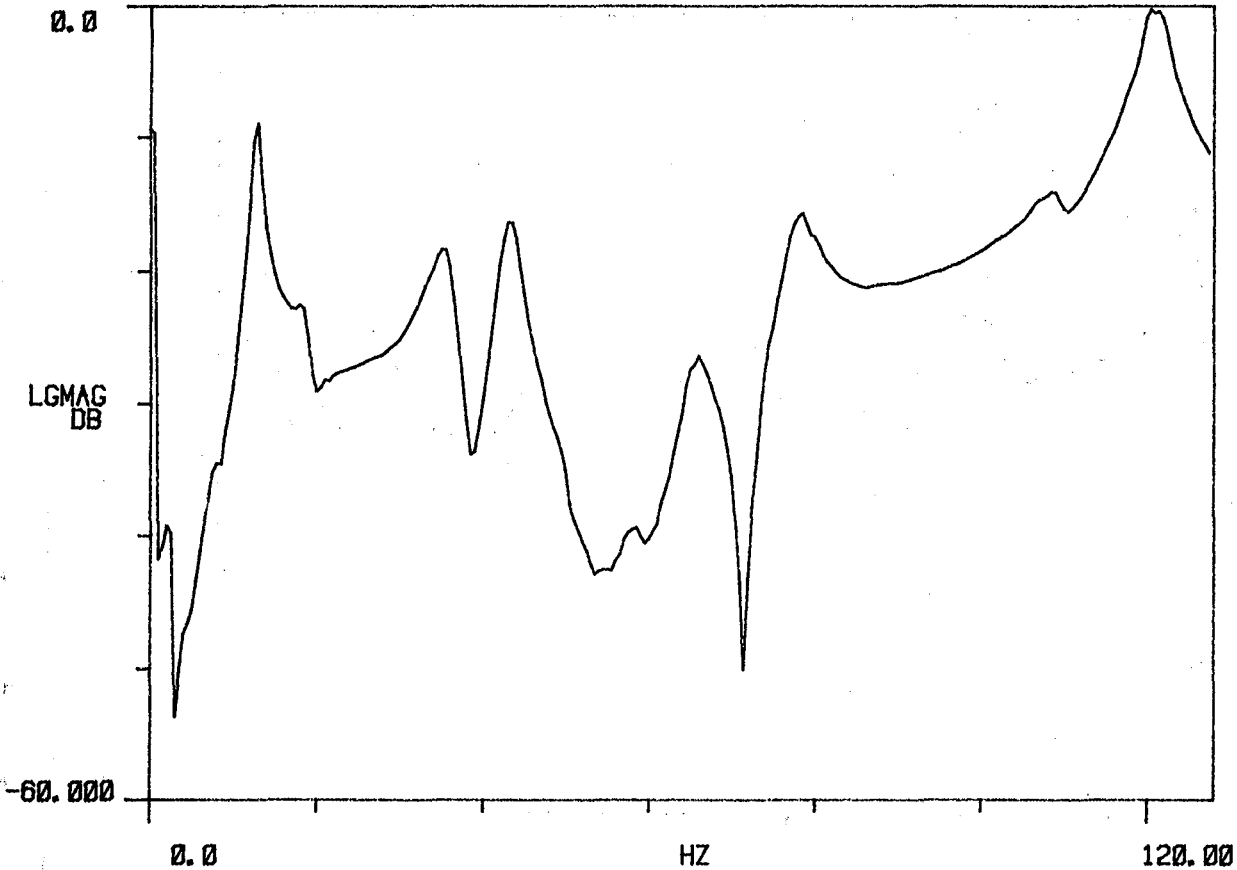
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.630	79.354	3.561	450.079	2.828
2	35.485	222.958	3.958	1.406	8.831
3	43.187	271.349	2.311	998.122	6.271
4	65.801	413.442	2.600	1.711	10.752
5	0.000	0.000	0.000	0.000	0.000
6	77.571	487.394	2.501	1.941	12.195
7	107.716	676.798	1.813	1.953	12.272
8	120.955	759.981	1.358	1.643	10.321

TRANS

R# 4

#A 325



FM5 BLADE 50. ACC. POS. #2. 10/81

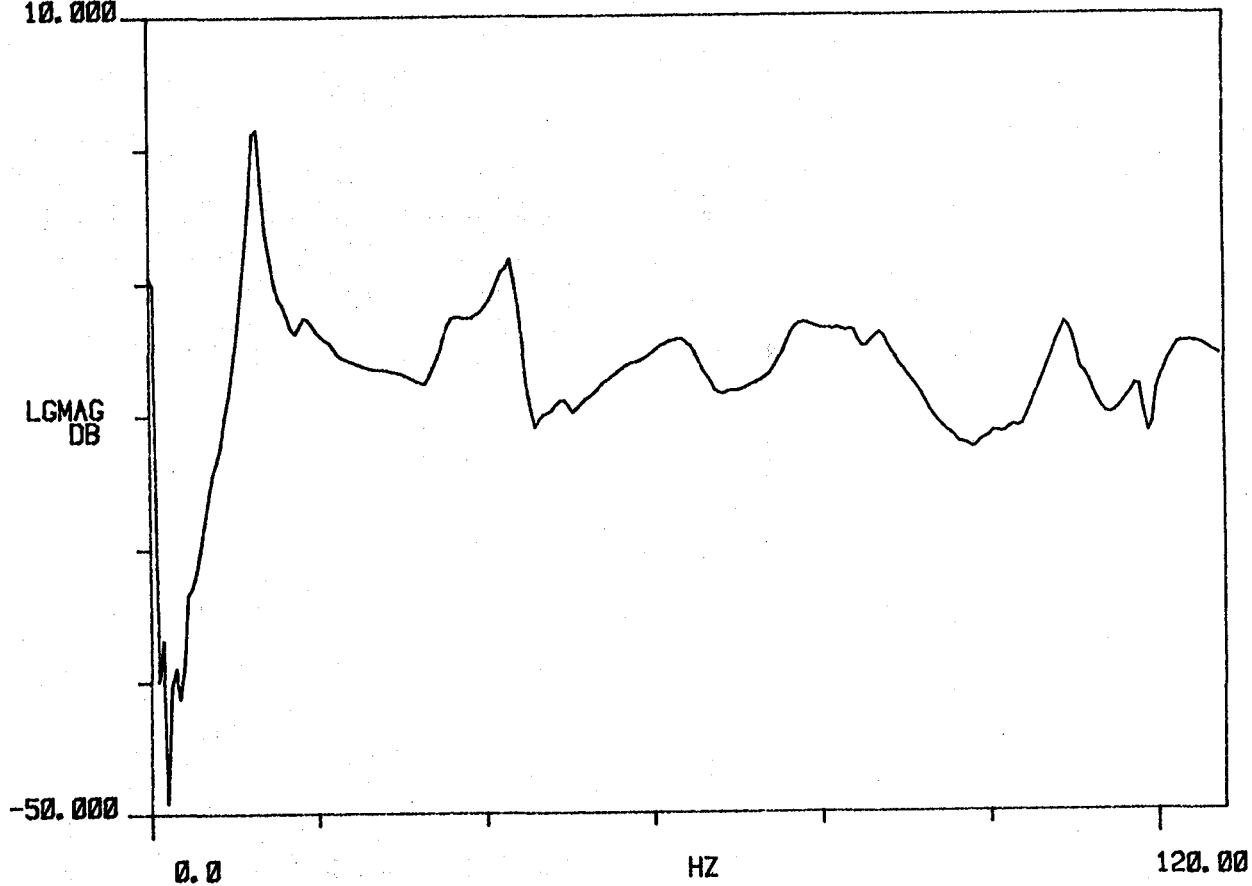
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.589	79.099	3.888	489.877 m	3.078
2	34.944	219.561	6.088	2.131	13.391
3	43.187	271.349	2.311	998.122 m	6.271
4	64.027	402.293	5.011	3.212	20.183
5	0.000	0.000	0.000	0.000	0.000
6	76.743	482.193	3.714	2.853	17.923
7	109.151	685.815	1.650	1.801	11.315
8	121.096	760.866	2.234	2.706	17.005

TRANS
10.000

R# 5

#A 325



FM5 BLADE 51. ACC. POS. #1. 10/81
160

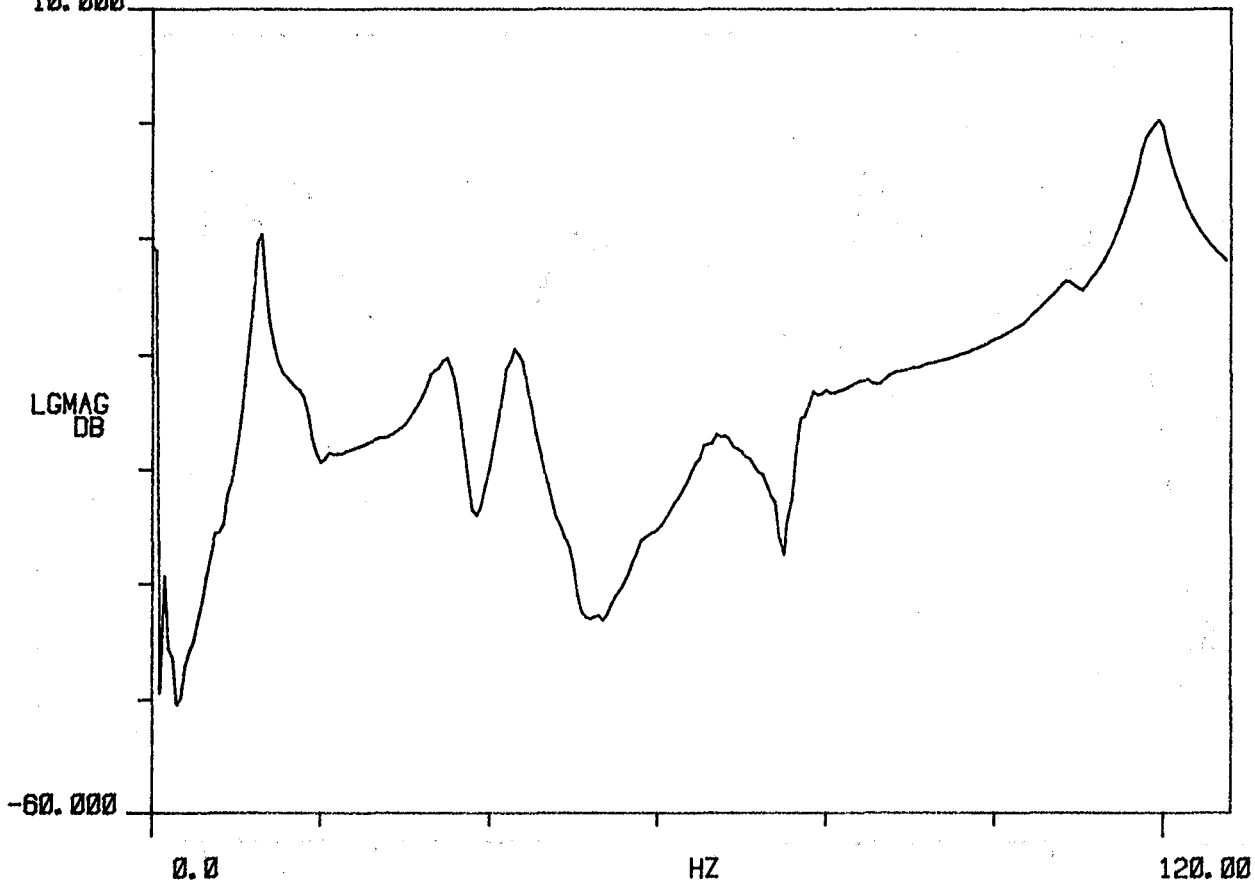
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.595	79.137	3.807	479.885	3.015
2	35.081	220.423	4.546	1.596	10.031
3	43.152	271.131	2.808	1.212	7.616
4	66.744	419.367	5.249	3.509	22.045
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	107.190	673.492	1.983	2.126	13.360
8	119.024	747.849	1.320	1.571	9.872

TRANS
10.000

R# 6

#A 325



FMS BLADE 51. ACC. POS. #2. 10/81

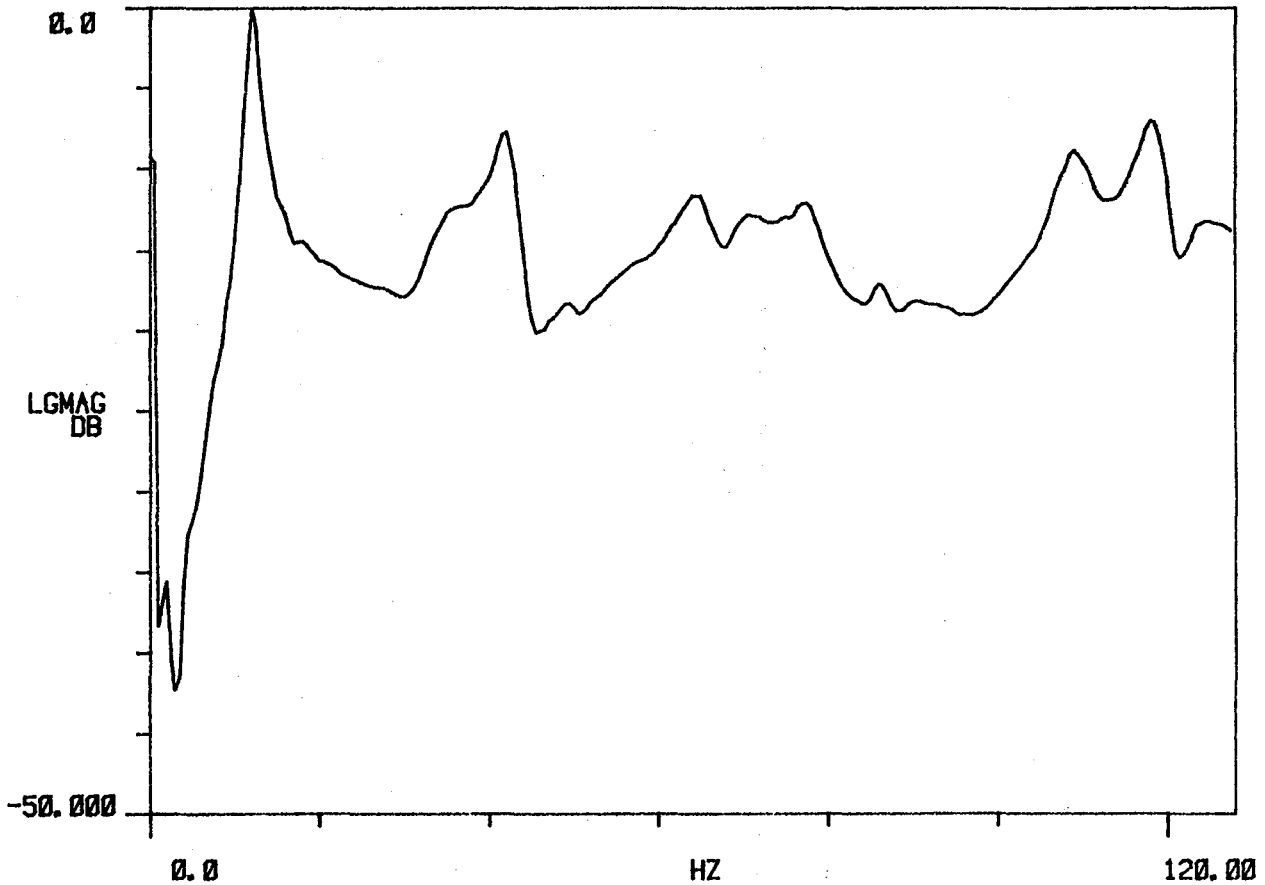
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.036	75.624	5.007	603.454	3.792
2	33.781	212.255	11.480	3.904	24.529
3	42.288	265.705	3.163	1.338	8.407
4	64.385	404.545	2.917	1.879	11.805
5	70.129	440.636	2.662	1.867	11.733
6	78.709	494.542	3.002	2.364	14.853
7	108.863	684.009	2.234	2.433	15.287
8	119.048	748.000	1.077	1.282	8.054

TRANS

R#: 9

#A: 325



FM5 BLADE 53. ACC. POS. #1. 10/81

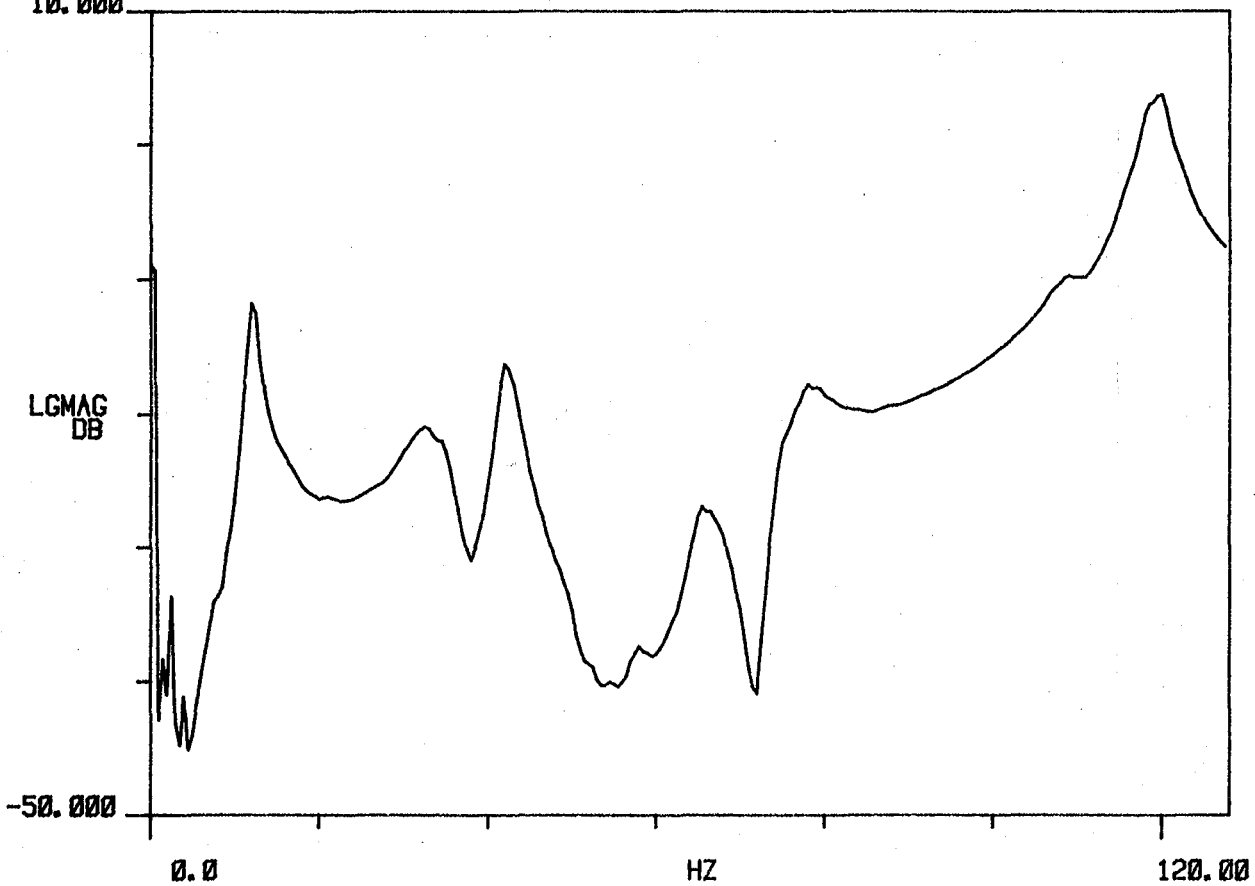
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.039	75.640	5.249	632.832	3.976
2	33.338	209.468	8.615	2.883	18.112
3	42.248	265.450	2.493	1.053	6.619
4	66.056	415.039	2.693	1.779	11.180
5	0.000	0.000	0.000	0.000	0.000
6	76.621	481.423	3.913	3.001	18.853
7	106.115	666.743	2.771	2.941	18.480
8	119.229	749.139	1.472	1.755	11.029

TRANS
10.000

R#: 10

#A: 325



FM5 BLADE 53. ACC. POS. #2. 10/81

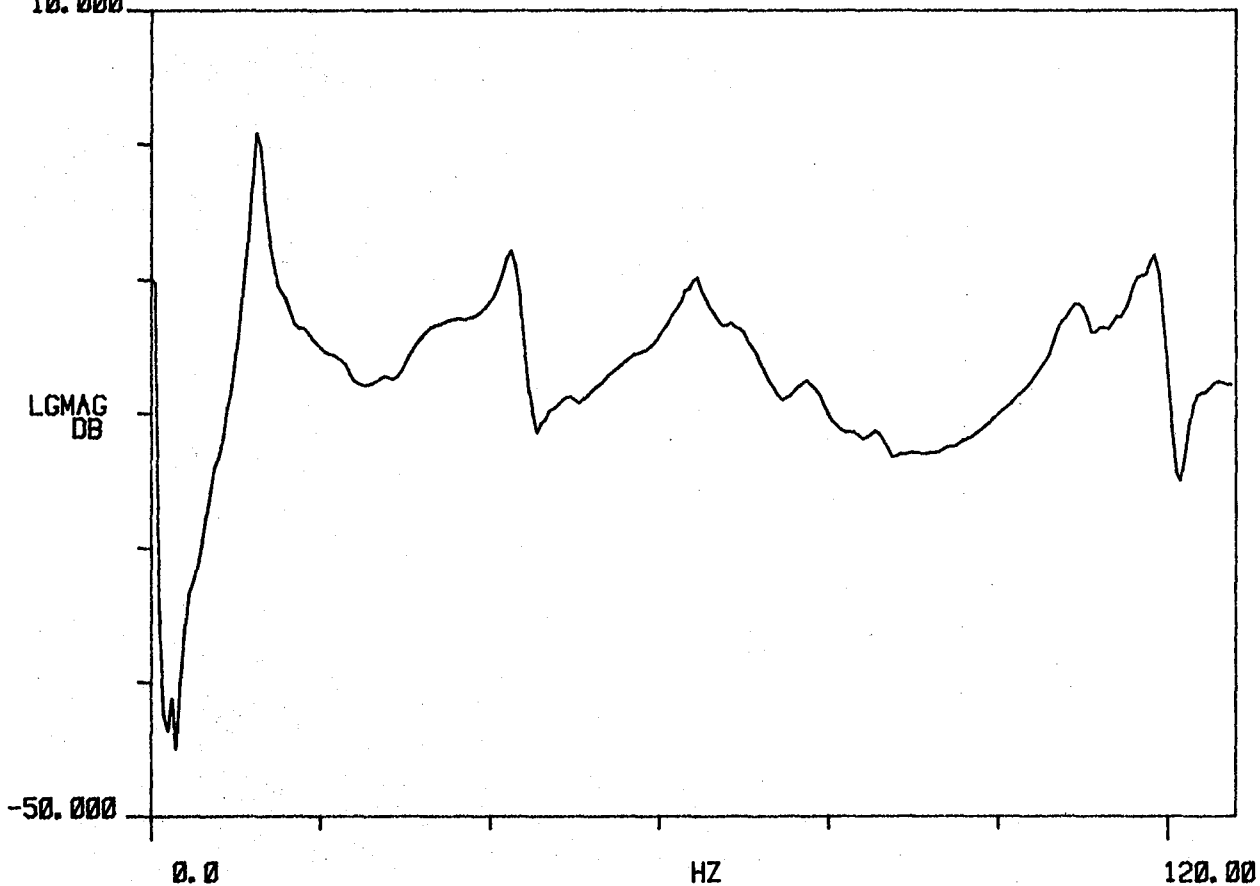
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.419	78.029	4.292	533.459	3.352
2	31.151	195.727	17.074	5.398	33.915
3	42.918	269.660	2.346	1.007	6.328
4	63.875	401.339	3.425	2.189	13.754
5	0.000	0.000	0.000	0.000	0.000
6	78.629	494.043	1.133	890.982	5.598
7	108.784	683.511	2.155	2.345	14.731
8	118.604	745.208	1.263	1.498	9.415

TRANS
10.000

R# 7

#A 325



FM5 BLADE 54. ACC. POS. #1. 10/81

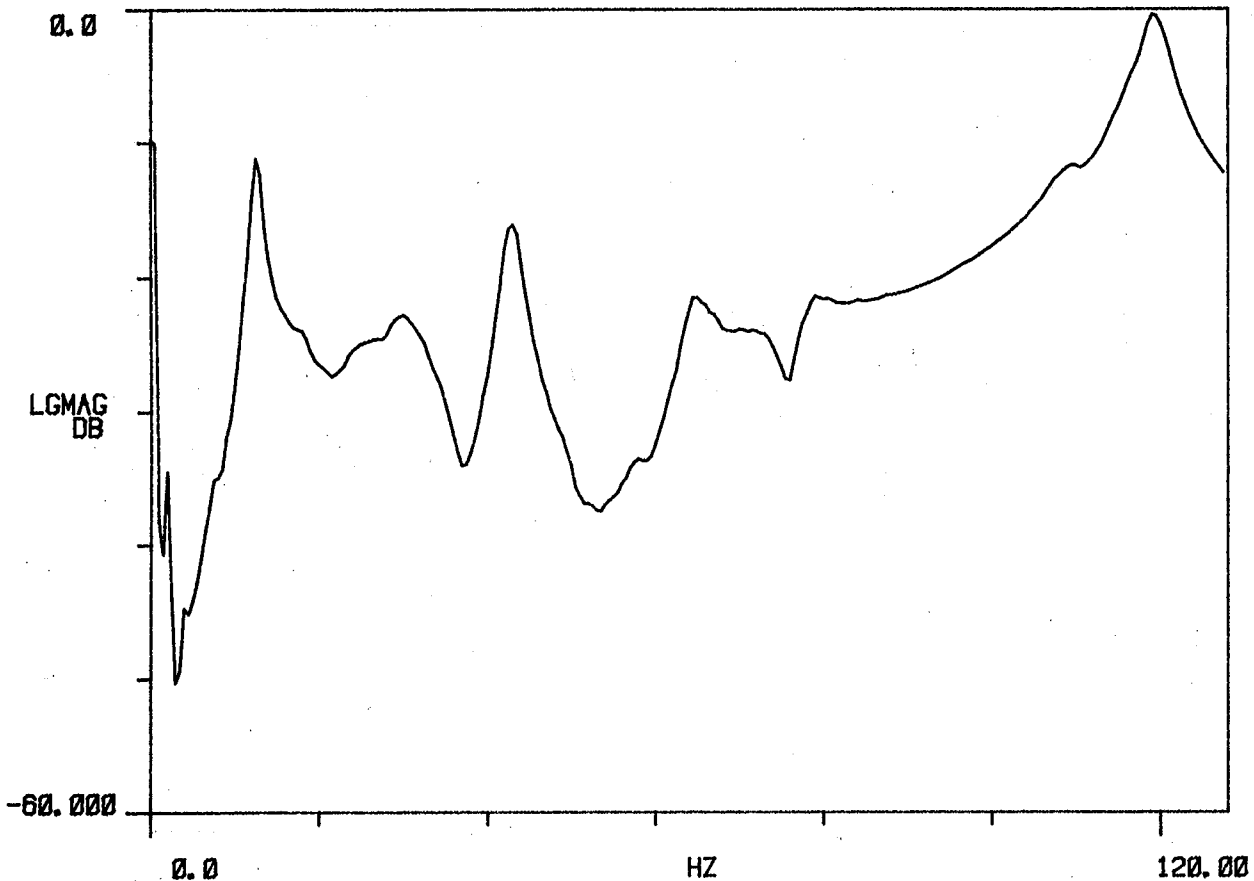
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.385	77.819	4.586	566.117	3.557
2	30.777	193.380	10.138	3.136	19.705
3	42.824	269.070	2.226	953.407	5.990
4	64.352	404.336	3.572	2.300	14.453
5	0.000	0.000	0.000	0.000	0.000
6	77.447	486.612	2.762	2.140	13.443
7	106.652	670.112	3.358	3.583	22.513
8	119.262	749.345	1.636	1.951	12.258

TRANS

R# 8

#A 325



FMS BLADE 54. ACC. POS. #2. 10/81

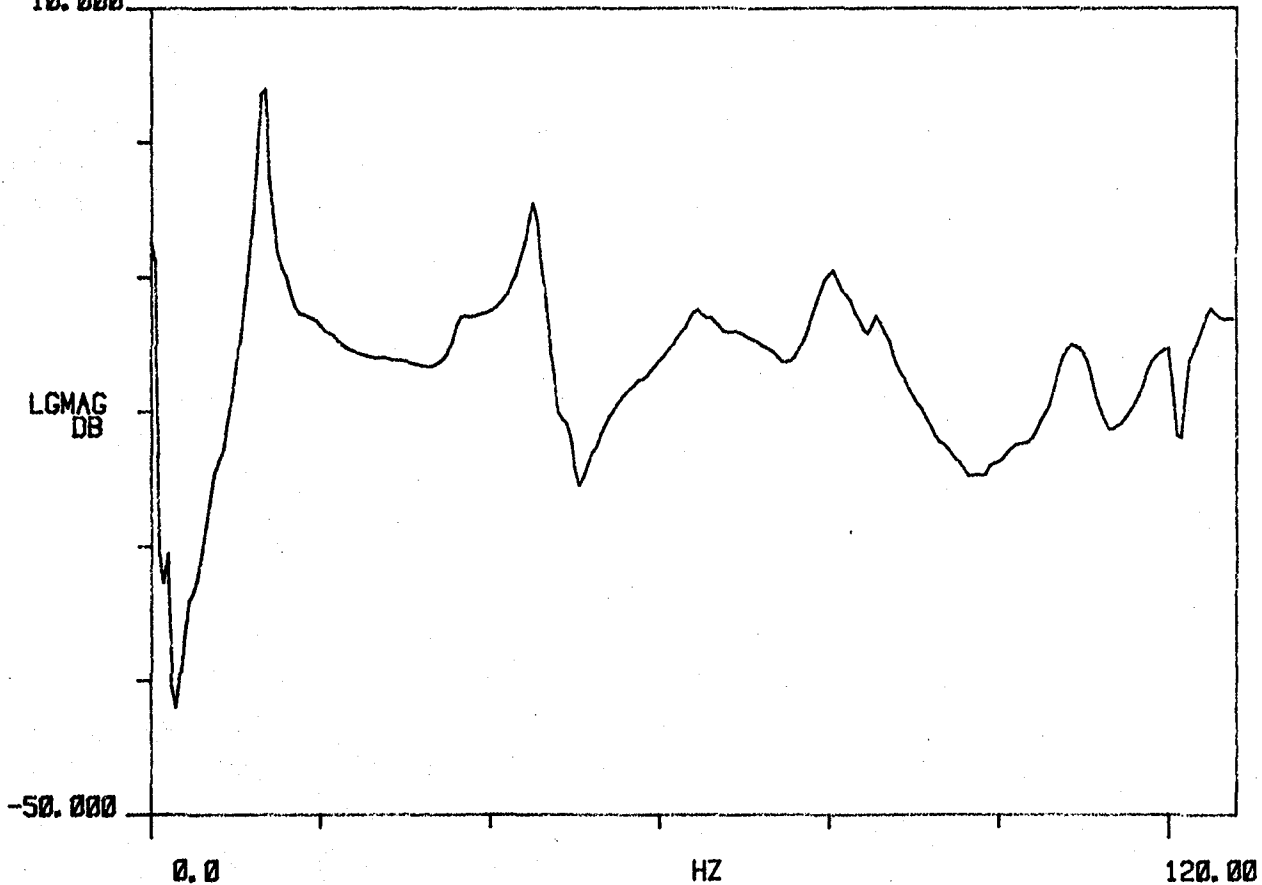
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.977	81.534	2.049	265.906	1.671
2	35.225	221.324	5.444	1.921	12.067
3	45.247	284.293	1.970	891.389	5.601
4	63.992	402.071	4.414	2.827	17.763
5	0.000	0.000	0.000	0.000	0.000
6	80.145	503.564	2.543	2.039	12.812
7	108.986	684.776	1.660	1.810	11.370
8	119.935	753.572	832.790	998.839	6.276

TRANS
10.000

R# 29

#A 325



FMS BLADE 55. ACC. POS. #1. 11/81

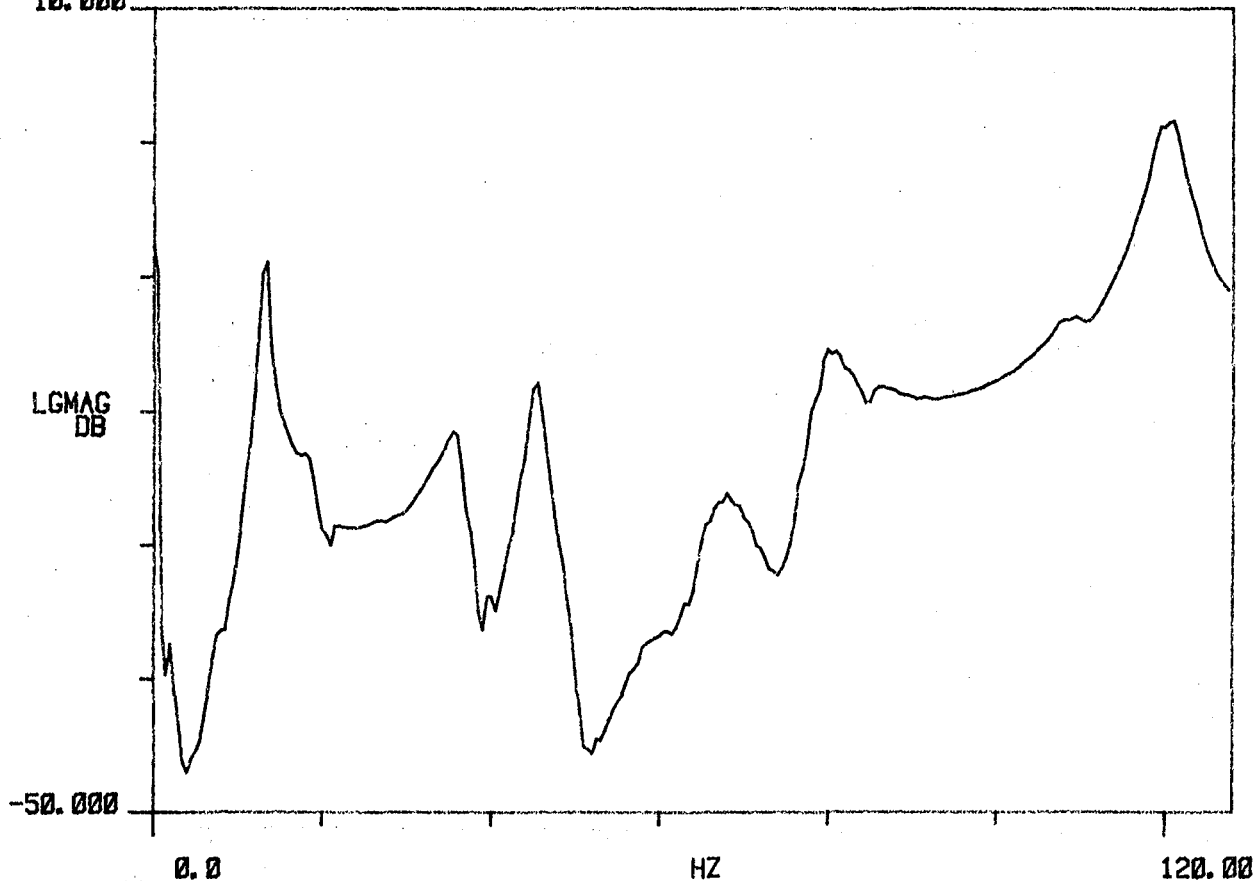
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.979	81.551	2.055	266.724	1.676
2	35.936	225.794	3.732	1.342	8.433
3	45.383	285.151	1.762	799.574	5.024
4	67.941	426.885	4.330	2.945	18.502
5	0.000	0.000	0.000	0.000	0.000
6	79.795	501.369	2.476	1.976	12.416
7	106.877	671.527	2.712	2.900	18.219
8	120.303	755.889	1.383	1.664	10.456

TRANS
10.000

R# 30

#A 325



FMS BLADE 55. ACC. POS. #2. 11/81

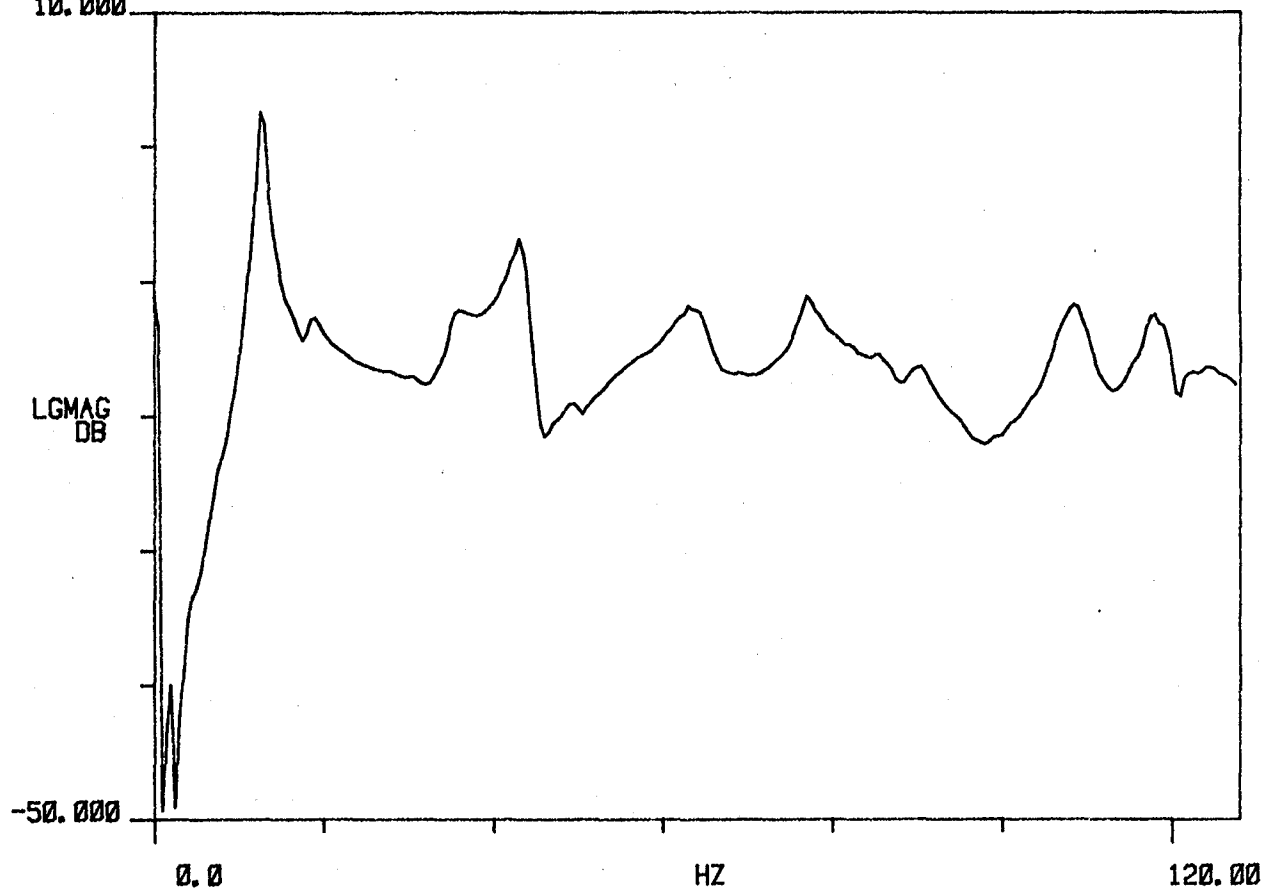
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.487	78.460	3.503	437.654 m	2.750
2	34.755	218.371	5.217	1.816	11.409
3	43.419	272.808	2.342	1.017	6.390
4	63.916	401.598	3.451	2.207	13.866
5	0.000	0.000	0.000	0.000	0.000
6	77.003	483.821	2.210	1.702	10.695
7	108.452	681.423	1.758	1.906	11.979
8	118.879	746.937	778.776 m	925.828 m	5.817

TRANS
10.000

R#: 17

#A: 325



FM5 BLADE 56. ACC. POS. #1. 10/81

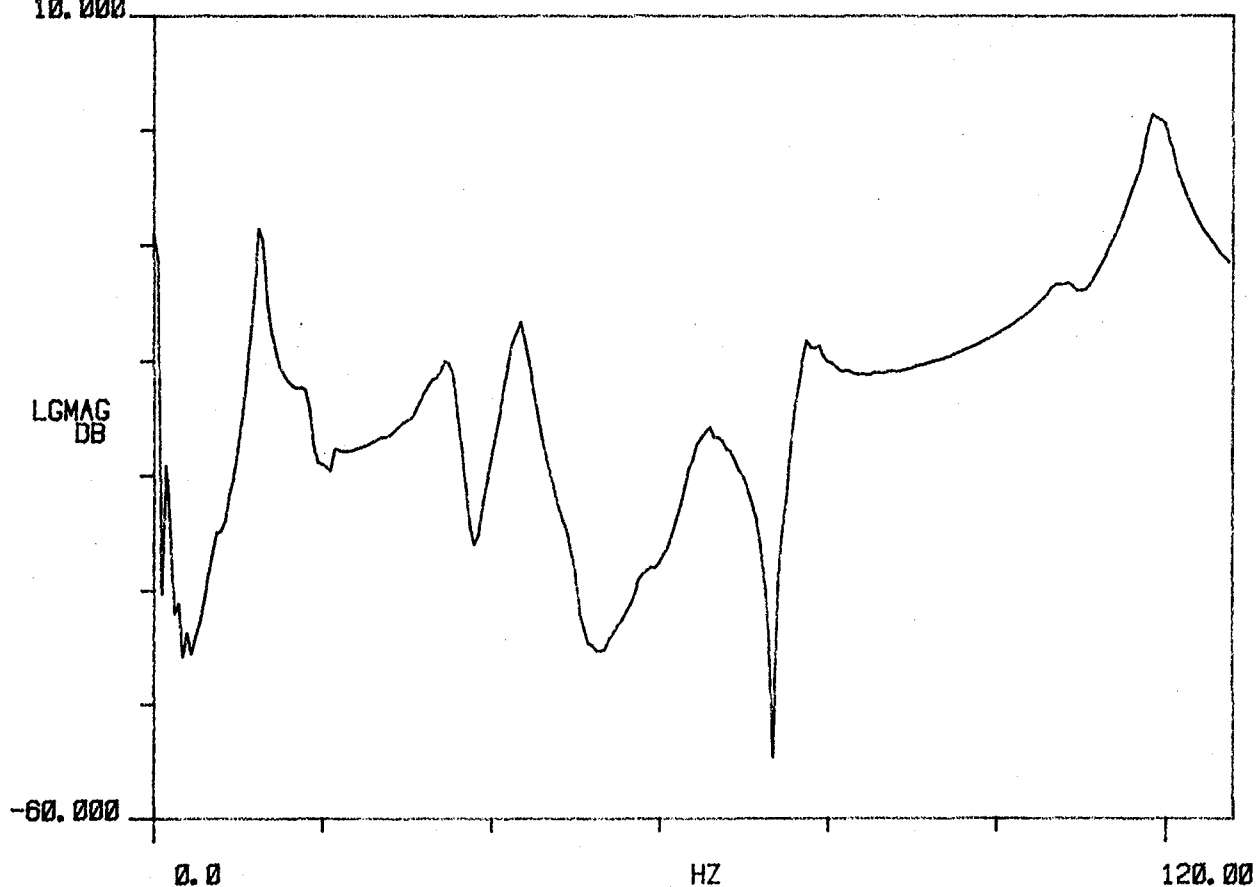
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	ξ	HZ	R/S
1	12.478	78.399	3.634	453.688 m	2.851
2	35.029	220.096	4.204	1.474	9.262
3	43.343	272.334	2.343	1.016	6.384
4	65.764	413.205	3.709	2.441	15.336
5	0.000	0.000	0.000	0.000	0.000
6	77.151	484.756	2.175	1.678	10.544
7	106.512	669.232	1.970	2.098	13.184
8	119.000	747.699	1.286	1.530	9.615

TRANS
10.000

R# 18

#A 325



FM5 BLADE 56. ACC. POS. #2. 10/81

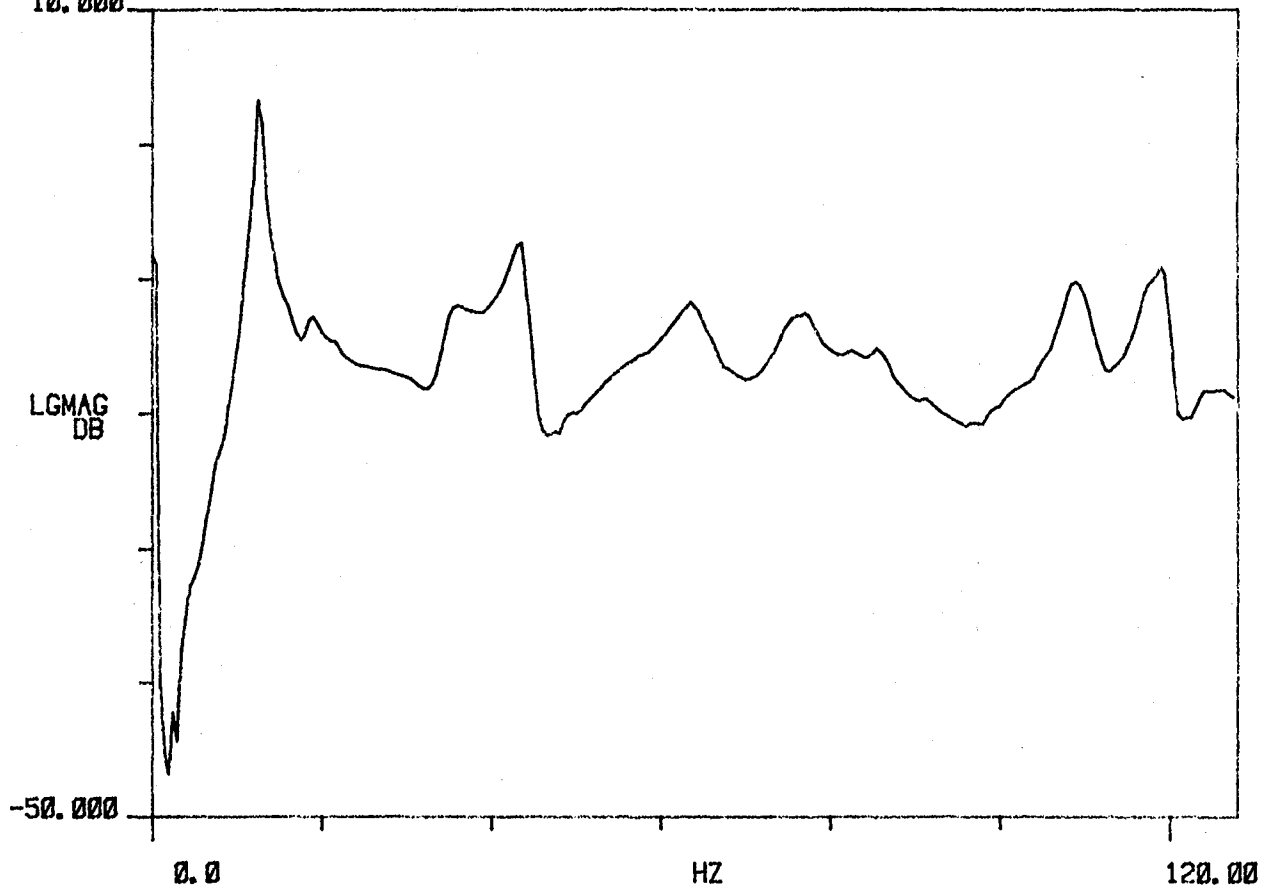
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.409	77.967	2.960	367.409 m	2.308
2	34.489	216.704	4.912	1.696	10.657
3	43.551	273.639	2.226	969.861 m	6.094
4	63.839	401.113	3.661	2.339	14.695
5	0.000	0.000	0.000	0.000	0.000
6	76.379	479.901	2.938	2.245	14.107
7	109.170	685.934	1.461	1.595	10.024
8	119.182	748.842	979.152 m	1.167	7.333

TRANS
10.000

R# 27

#A 325



FM5 BLADE 57. ACC. POS. #1. 11/81

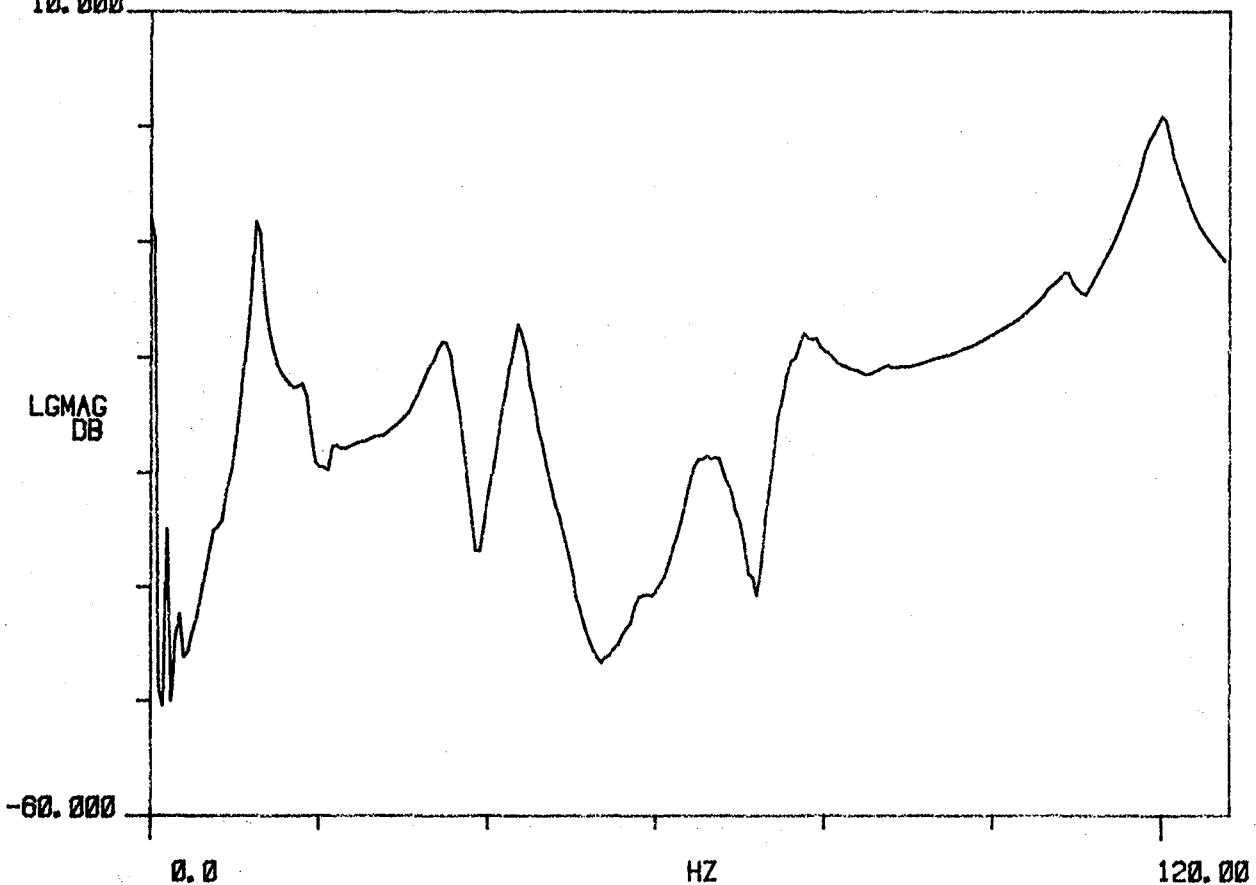
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.433	78.121	2.961	368.262 m	2.314
2	34.978	219.775	4.088	1.431	8.991
3	43.646	274.235	2.073	904.756 m	5.685
4	66.329	416.754	3.593	2.385	14.985
5	0.000	0.000	0.000	0.000	0.000
6	76.817	482.658	3.143	2.415	15.175
7	107.943	678.225	1.270	1.371	8.617
8	119.699	752.094	1.354	1.621	10.183

TRANS
10.000

R# 28

#A 325



FM5 BLADE 57. ACC. POS. #2. 11/81

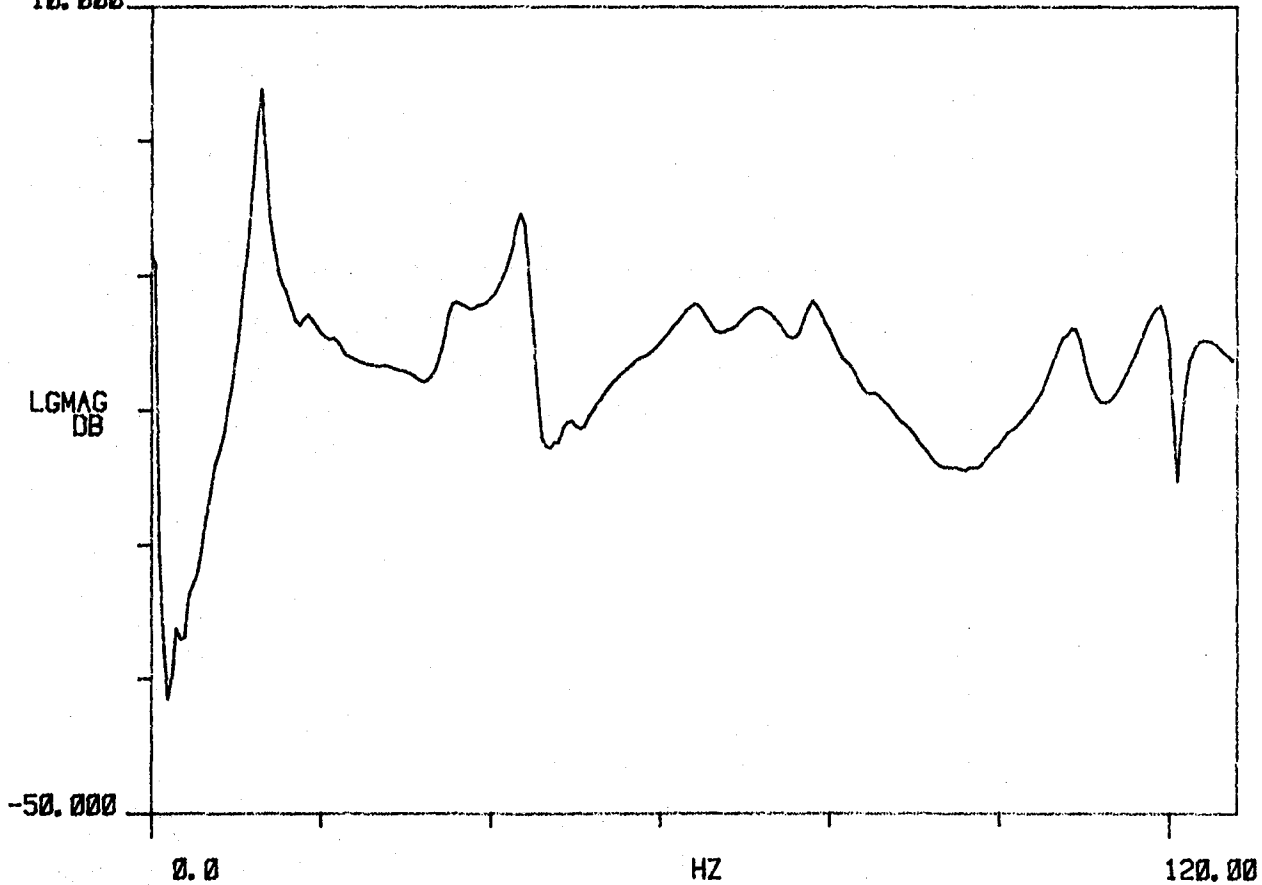
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.678	79.655	2.566	325.402 m	2.045
2	34.608	217.449	4.348	1.506	9.464
3	43.802	275.215	1.863	816.124 m	5.128
4	63.985	402.032	3.748	2.400	15.080
5	72.387	454.822	3.463	2.508	15.760
6	78.571	493.674	1.860	1.462	9.185
7	108.559	682.098	1.565	1.700	10.679
8	119.391	750.155	934.975 m	1.116	7.014

TRANS
10.000

R# 25

#A 325



FMS BLADE 59. ACC. POS. #1. 11/81

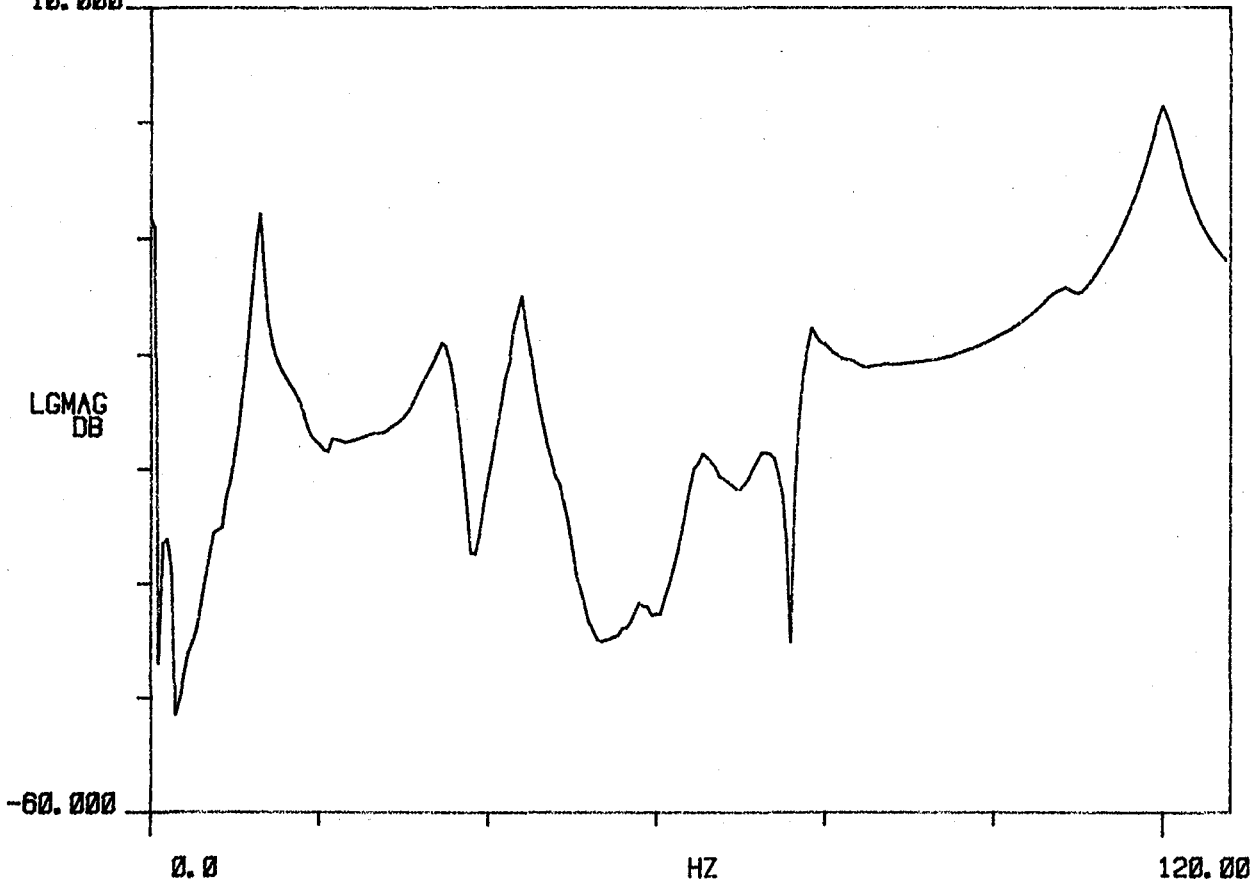
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.679	79.665	2.550	323.444	2.032
2	34.938	219.523	3.957	1.384	8.694
3	43.813	275.284	1.892	829.238	5.210
4	64.827	407.323	2.672	1.733	10.886
5	73.786	463.609	1.472	1.086	6.825
6	77.822	488.972	1.788	1.392	8.745
7	106.534	669.373	1.113	1.186	7.452
8	120.053	754.317	1.246	1.496	9.400

TRANS
10.000

R# 26

#A 325



FMS BLADE 59. ACC. POS. #2. 11/81

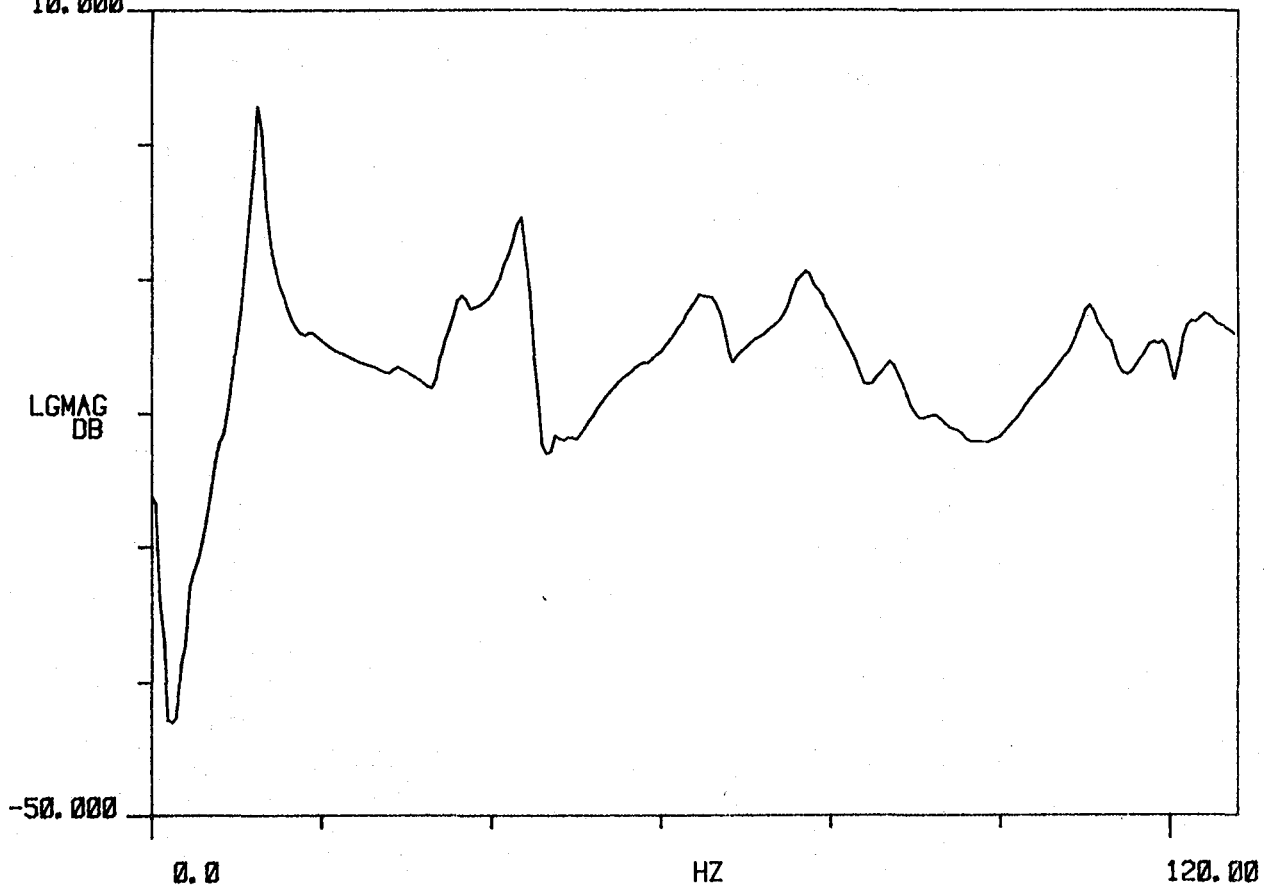
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.361	77.664	2.751	340.174	2.137
2	35.515	223.150	5.326	1.894	11.903
3	43.566	273.735	2.222	968.279	6.084
4	48.322	303.616	4.985	2.412	15.155
5	65.455	411.268	3.390	2.221	13.952
6	77.532	487.147	3.098	2.403	15.100
7	110.656	695.271	1.944	2.152	13.519
8	121.642	764.297	1.809	2.201	13.829

TRANS
10.000

R# 13

#A 325



FM2 BLADE 60. ACC. POS. #1. 01/82

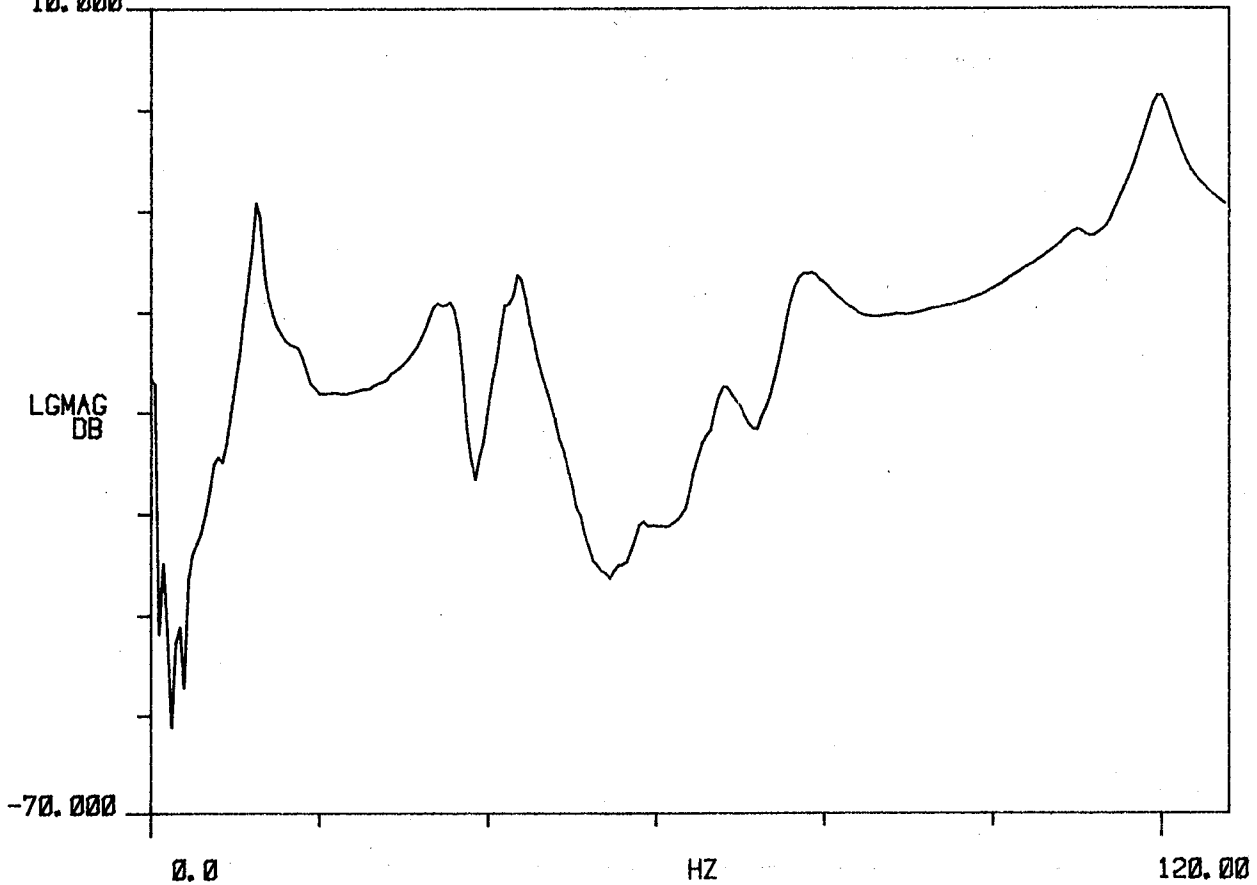
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	$\%$	HZ	R/S
1	12.361	77.669	2.843	351.589	2.209
2	35.228	221.347	4.680	1.650	10.369
3	43.517	273.424	2.512	1.093	6.870
4	56.128	352.660	2.565	1.440	9.048
5	69.066	433.953	2.437	1.684	10.579
6	77.186	484.975	2.931	2.263	14.222
7	108.906	684.278	1.231	1.340	8.422
8	119.600	751.469	1.335	1.597	10.036

TRANS
10.000

R# 14

#A 325



FM2 BLADE 60. ACC. POS. #2. 01/82

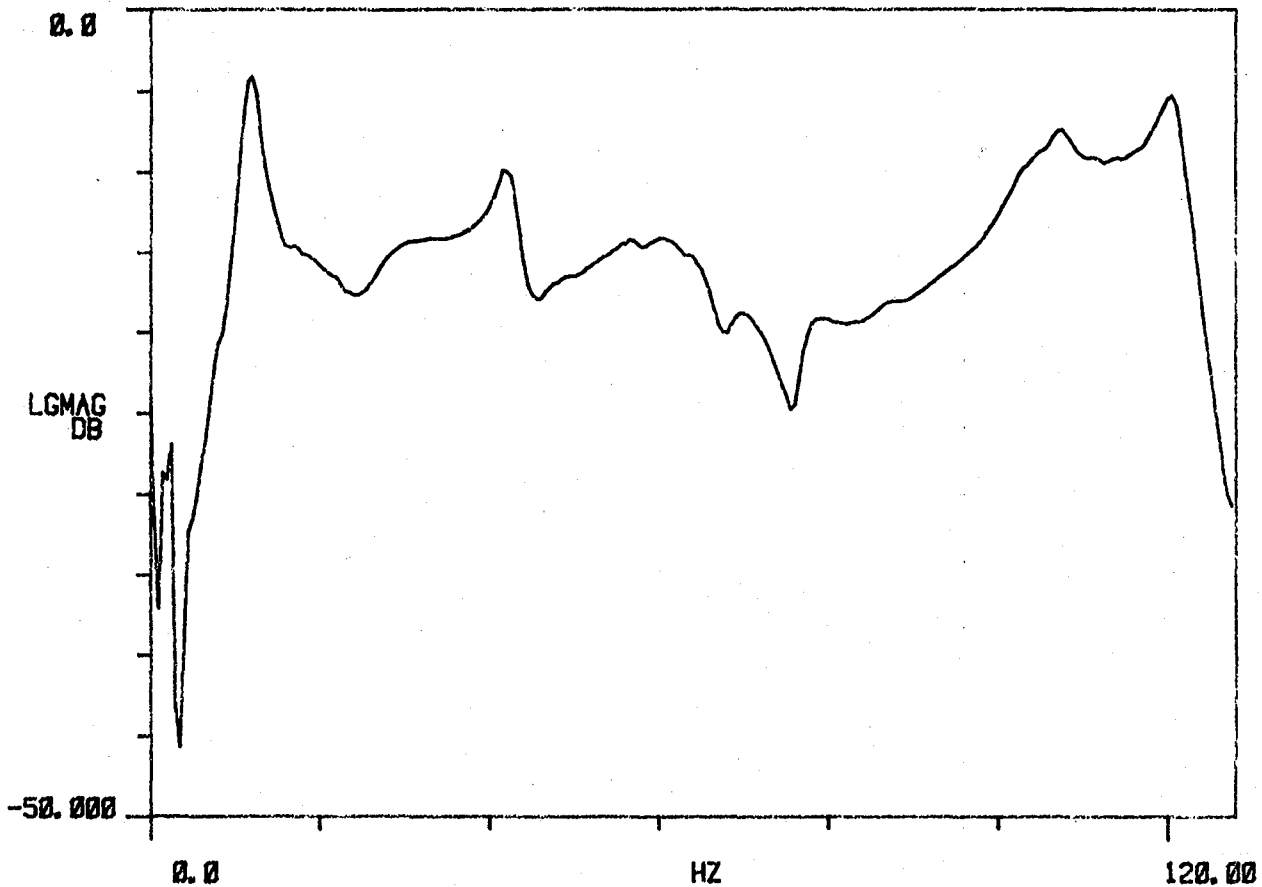
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.528	72.434	6.305	728.272	4.576
2	27.274	171.366	19.192	5.334	33.512
3	42.460	266.784	3.124	1.327	8.337
4	62.836	394.813	9.570	6.041	37.956
5	72.673	456.616	1.178	855.825	5.377
6	76.950	483.492	1.034	795.401	4.998
7	106.709	670.473	4.462	4.766	29.945
8	120.729	758.566	1.480	1.787	11.225

TRANS

R# 25

#A 325



FM3 BLADE 61. ACC. POS. #1. 01/82

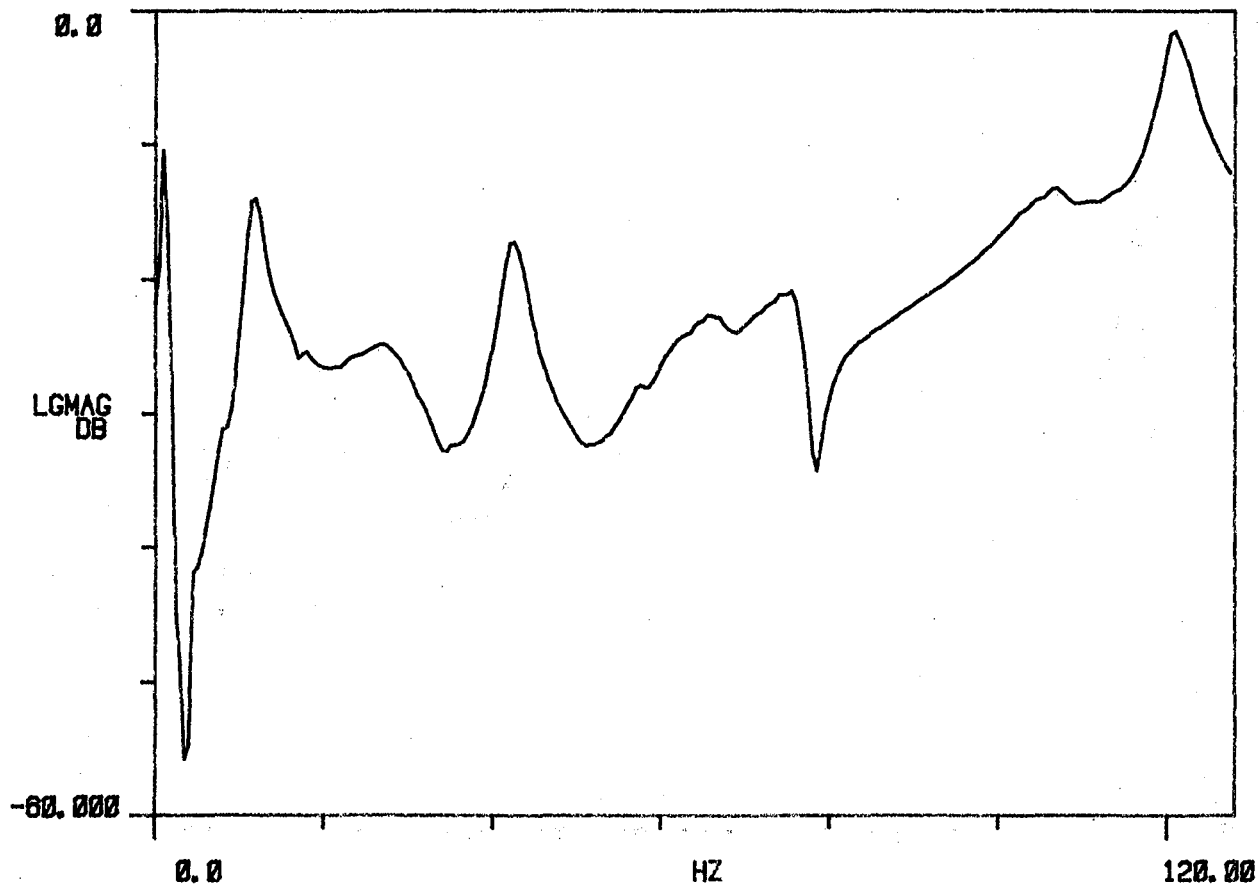
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.503	72.277	6.433	741.523	4.659
2	28.092	176.507	14.780	4.198	26.378
3	42.442	266.669	2.862	1.215	7.635
4	64.522	405.403	8.872	5.747	36.109
5	0.000	0.000	0.000	0.000	0.000
6	76.083	478.044	2.890	2.200	13.822
7	105.876	665.239	4.947	5.244	32.952
8	120.914	759.726	1.313	1.588	9.976

TRANS

R# 26

#A 325



FM3 BLADE 61. ACC. POS. #2. 01/82

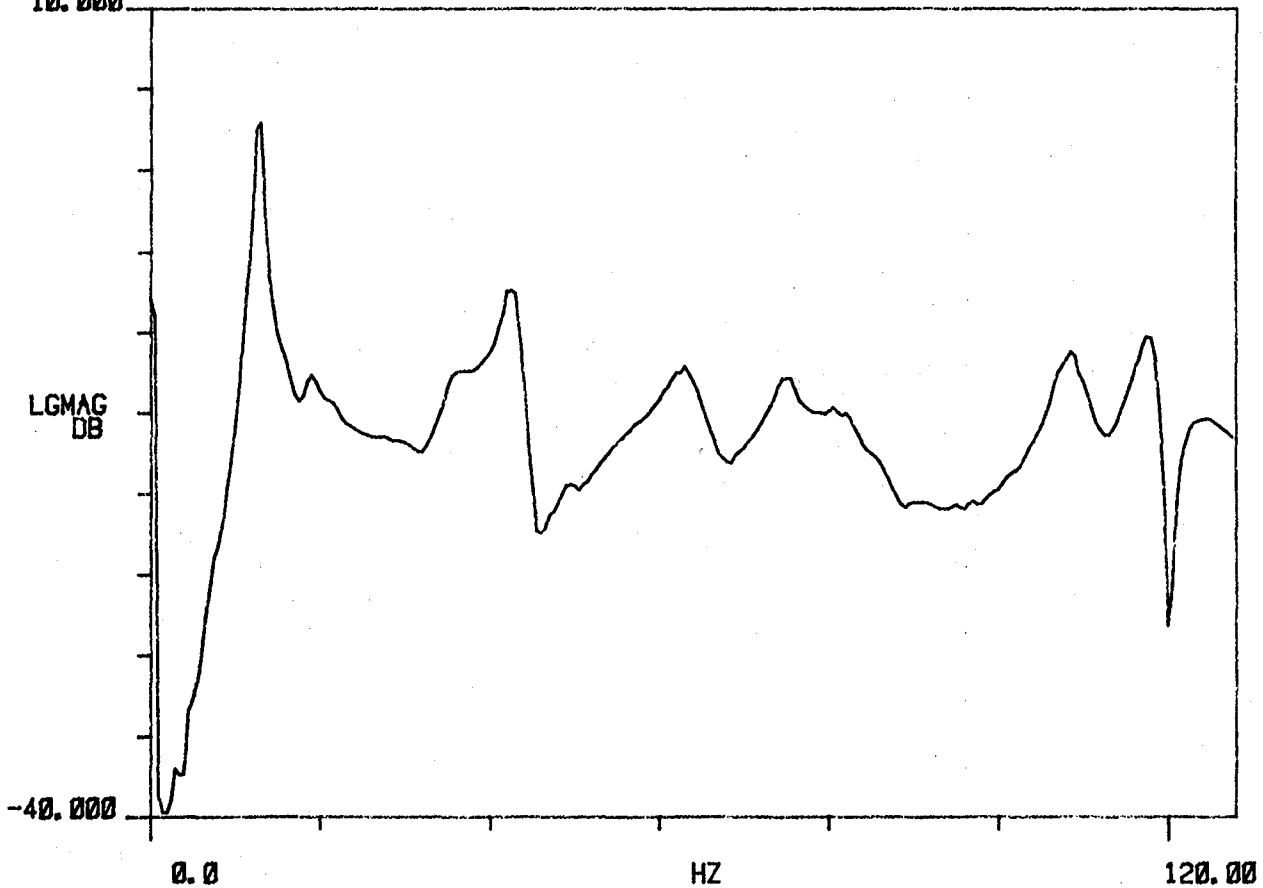
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.567	78.961	3.086	388.041	2.438
2	34.282	215.402	7.465	2.566	16.124
3	42.890	269.488	2.481	1.064	6.687
4	63.306	397.764	3.917	2.482	15.593
5	74.815	470.077	2.292	1.715	10.775
6	83.525	524.803	4.458	3.727	23.420
7	108.432	681.297	1.866	2.023	12.712
8	118.103	742.062	1.030	1.217	7.646

TRANS
10.000

R# 23

#A 325



FMS BLADE 62. ACC. POS. #1. 11/81

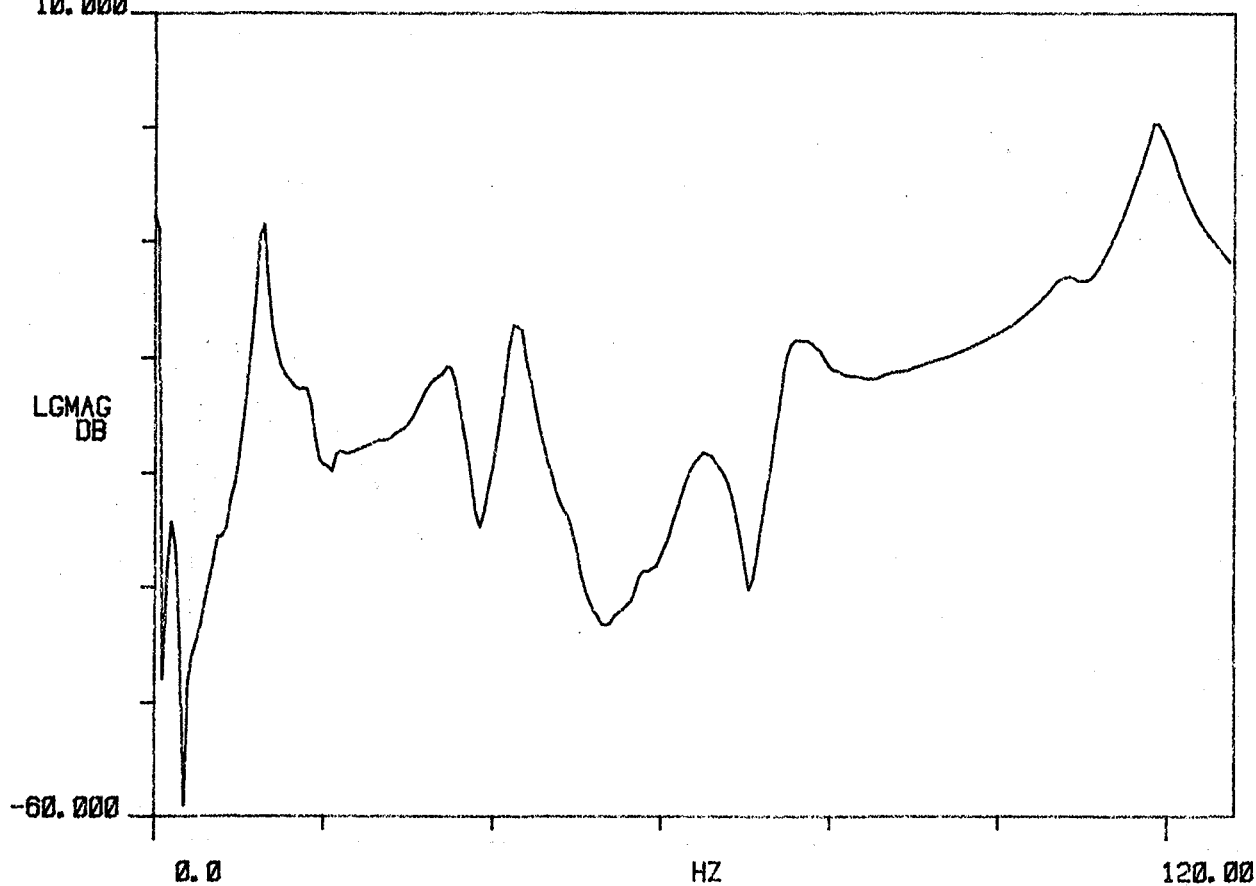
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.602	79.178	3.120	393.321 m	2.471
2	34.872	219.109	5.271	1.841	11.565
3	42.862	269.312	2.224	953.589 m	5.992
4	65.167	409.457	3.637	2.372	14.903
5	0.000	0.000	0.000	0.000	0.000
6	75.613	475.091	3.036	2.297	14.430
7	106.365	668.311	2.058	2.189	13.754
8	118.880	746.944	1.495	1.777	11.165

TRANS
10.000

R# 24

#A 325



F5 BLADE 62. ACC. POS. #2. 11/81

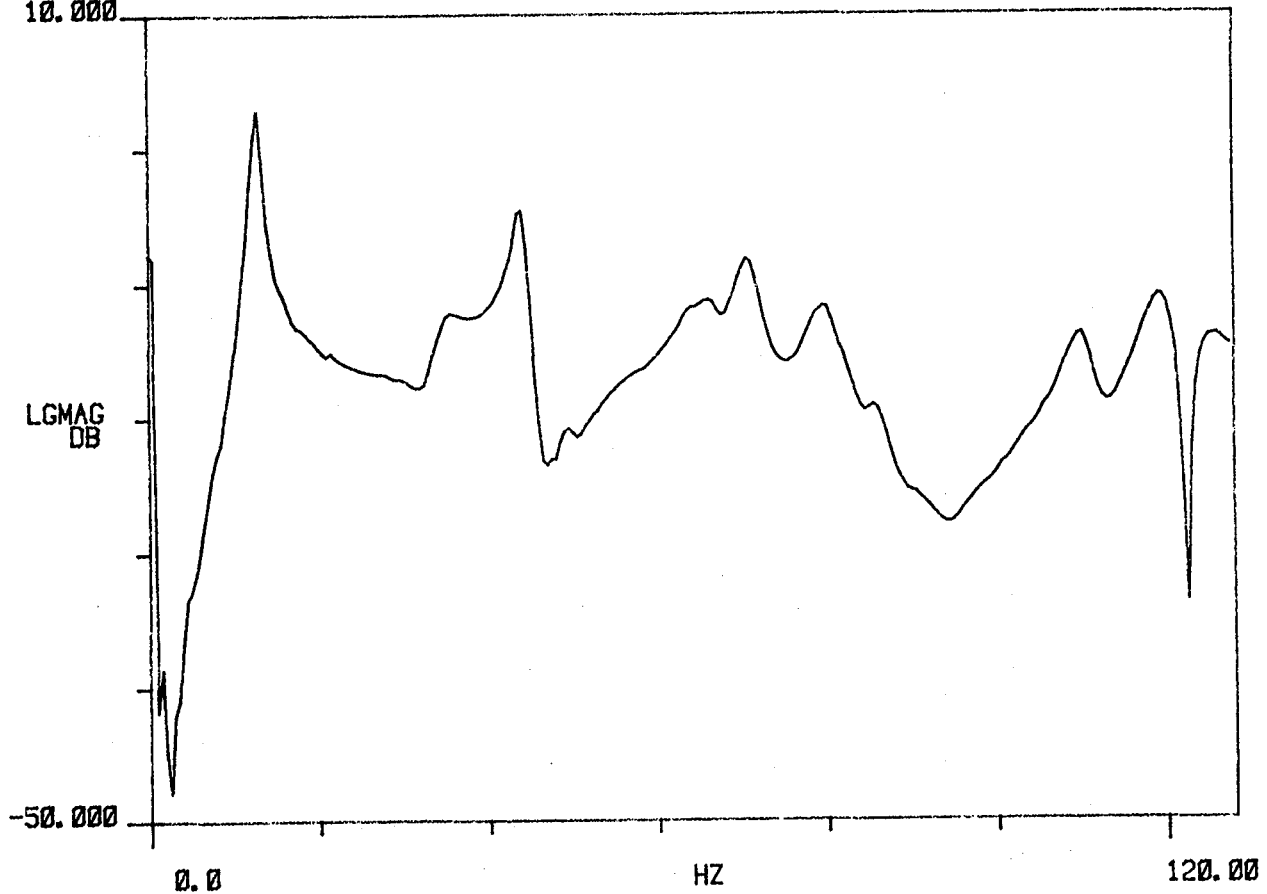
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.619	79.290	2.916	368.182 m	2.313
2	33.880	212.874	5.802	1.969	12.372
3	44.020	276.588	1.637	720.909 m	4.530
4	64.512	405.341	4.365	2.819	17.711
5	70.885	445.381	1.938	1.374	8.633
6	79.919	502.143	2.279	1.822	11.447
7	109.755	689.609	1.430	1.569	9.860
8	119.788	752.648	1.314	1.574	9.887

TRANS
10.000

R#: 21

#A: 325



FM5 BLADE 63. ACC. POS. #1. 10/81

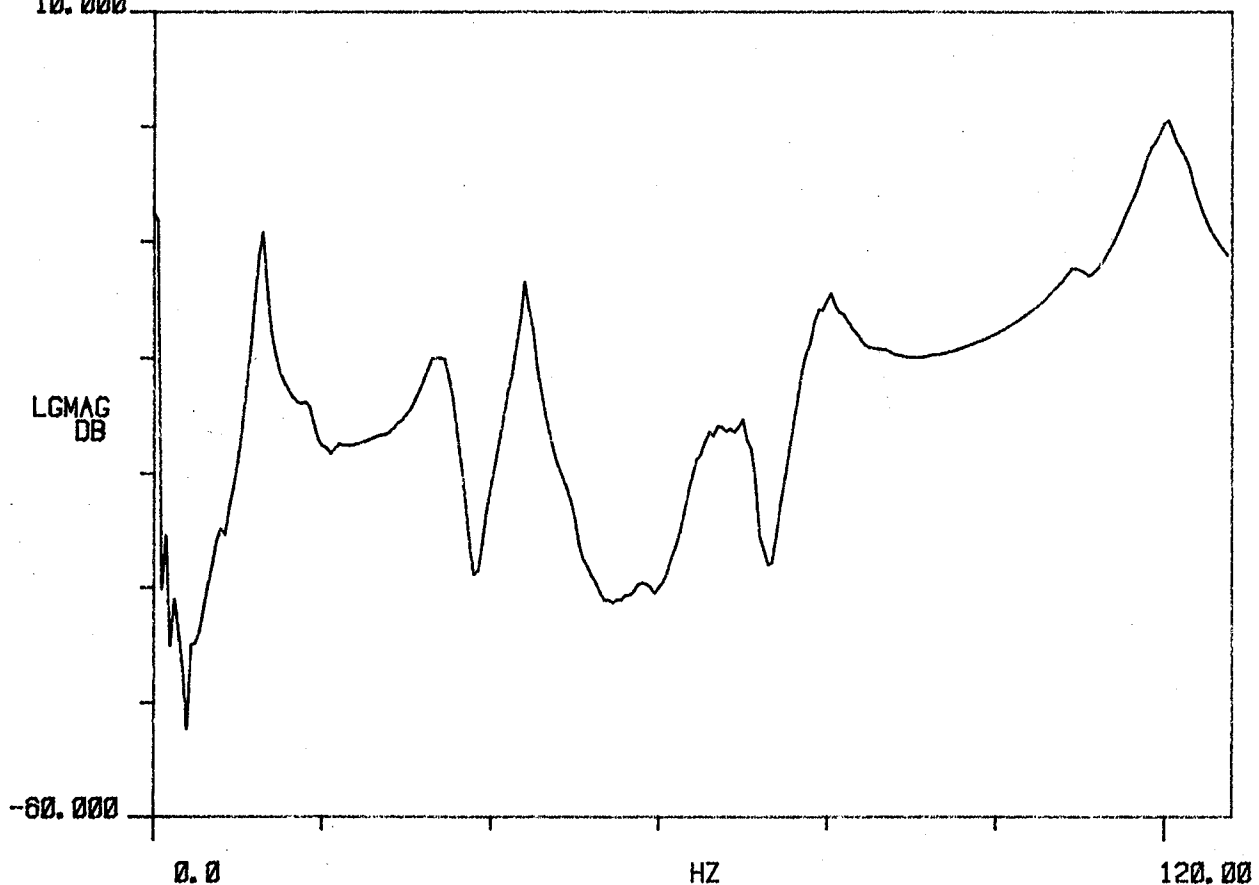
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.611	79.239	2.784	351.289	2.207
2	34.187	214.801	4.776	1.635	10.270
3	44.045	276.741	1.596	702.945	4.417
4	69.191	434.743	3.655	2.531	15.901
5	0.000	0.000	0.000	0.000	0.000
6	79.406	498.925	2.824	2.243	14.095
7	108.044	678.859	1.949	2.106	13.233
8	120.199	755.235	1.749	2.102	13.210

TRANS
10.000

R# 22

#A 325



FM5 BLADE 63. ACC. POS. #2. 10/81

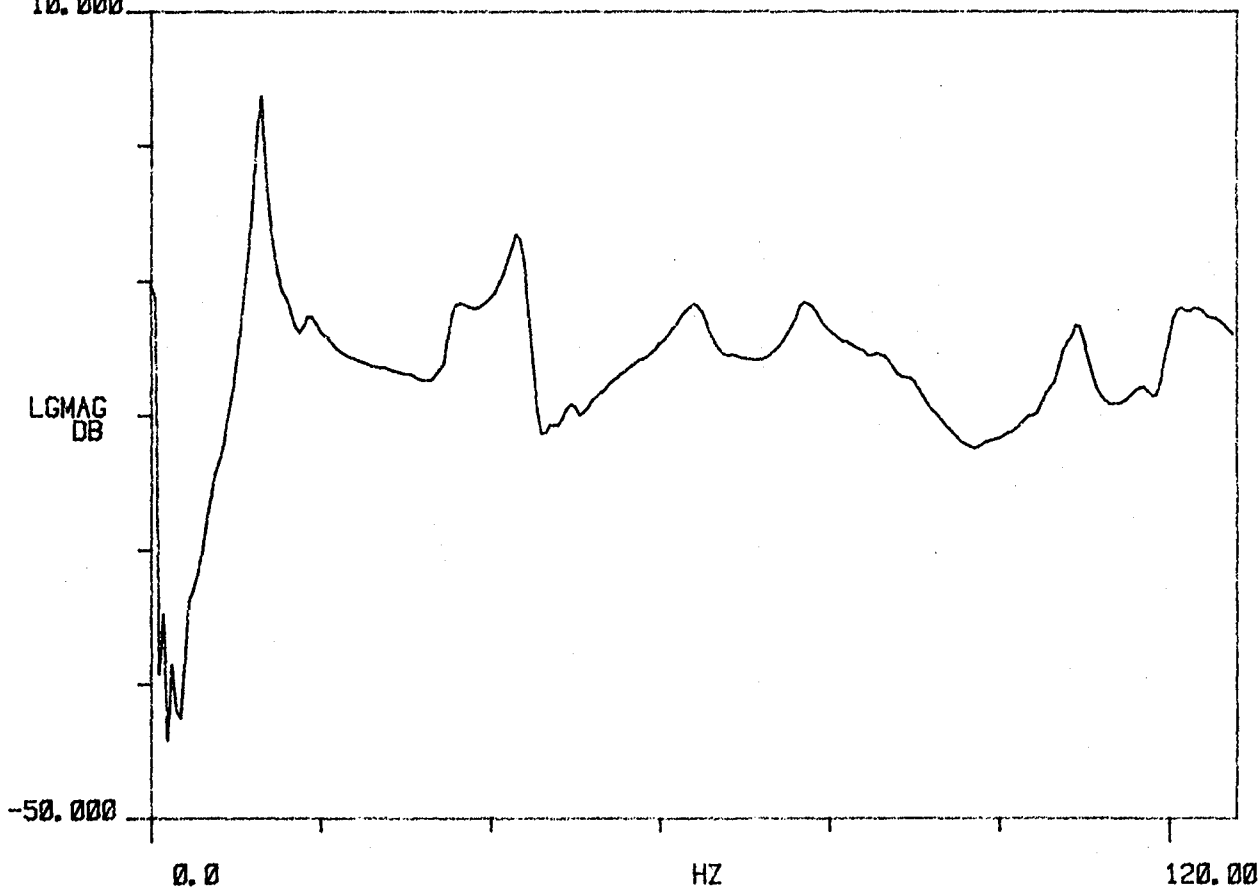
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.786	80.338	3.181	406.949 m	2.557
2	35.055	220.255	4.561	1.600	10.056
3	43.538	273.555	2.340	1.019	6.402
4	64.196	403.358	3.588	2.305	14.481
5	0.000	0.000	0.000	0.000	0.000
6	77.142	484.698	2.727	2.104	13.223
7	109.185	686.027	1.404	1.533	9.633
8	120.402	756.506	1.813	2.183	13.714

TRANS
10.000

R#: 19

#A: 325



FM5 BLADE 64. ACC. POS. #1. 10/81

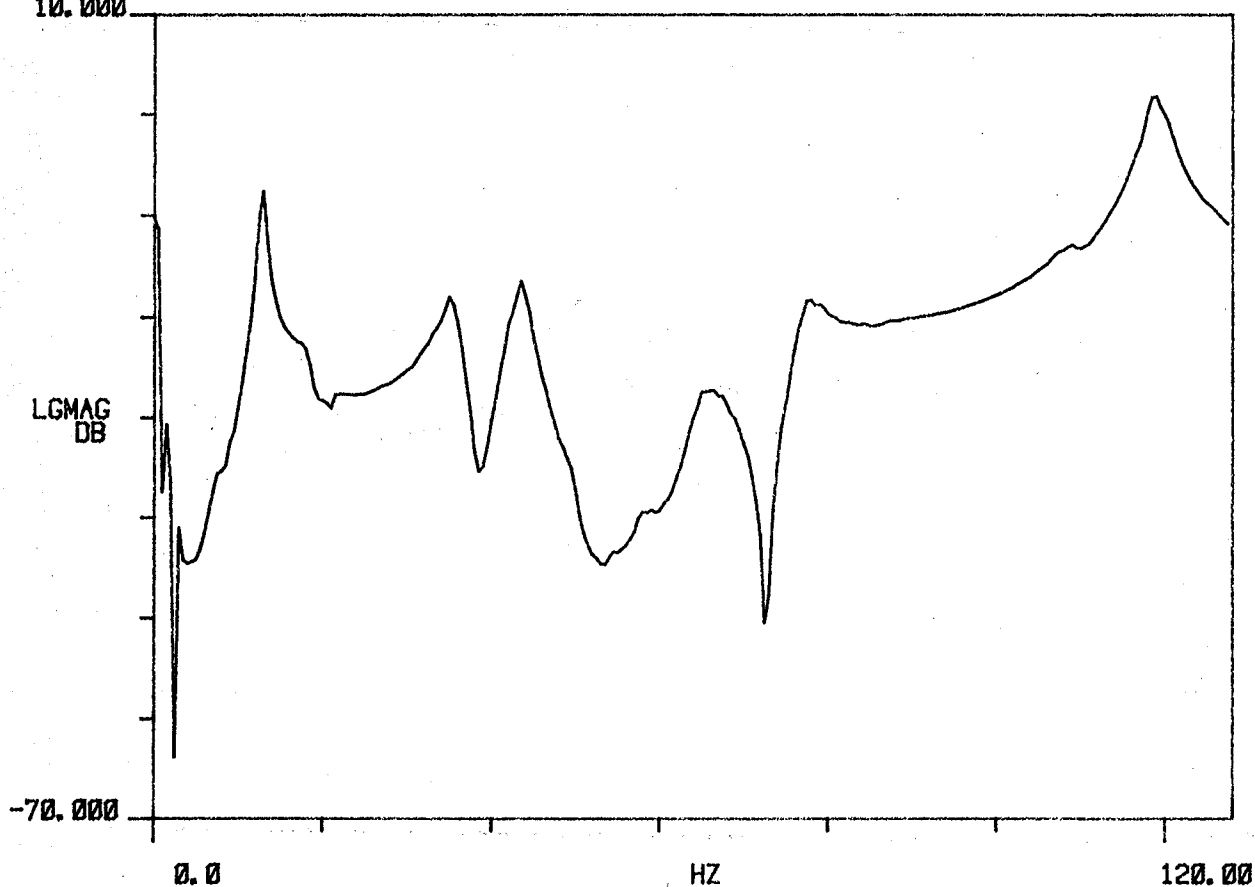
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.775	80.267	3.294	421.040 m	2.645
2	35.428	222.599	3.372	1.195	7.510
3	43.477	273.173	2.272	988.056 m	6.208
4	65.792	413.382	3.329	2.192	13.770
5	0.000	0.000	0.000	0.000	0.000
6	77.084	484.334	2.563	1.977	12.419
7	106.622	669.925	380.935 m	406.164 m	2.552
8	118.907	747.112	1.250	1.487	9.341

TRANS
10.000

R# 20

#A 325



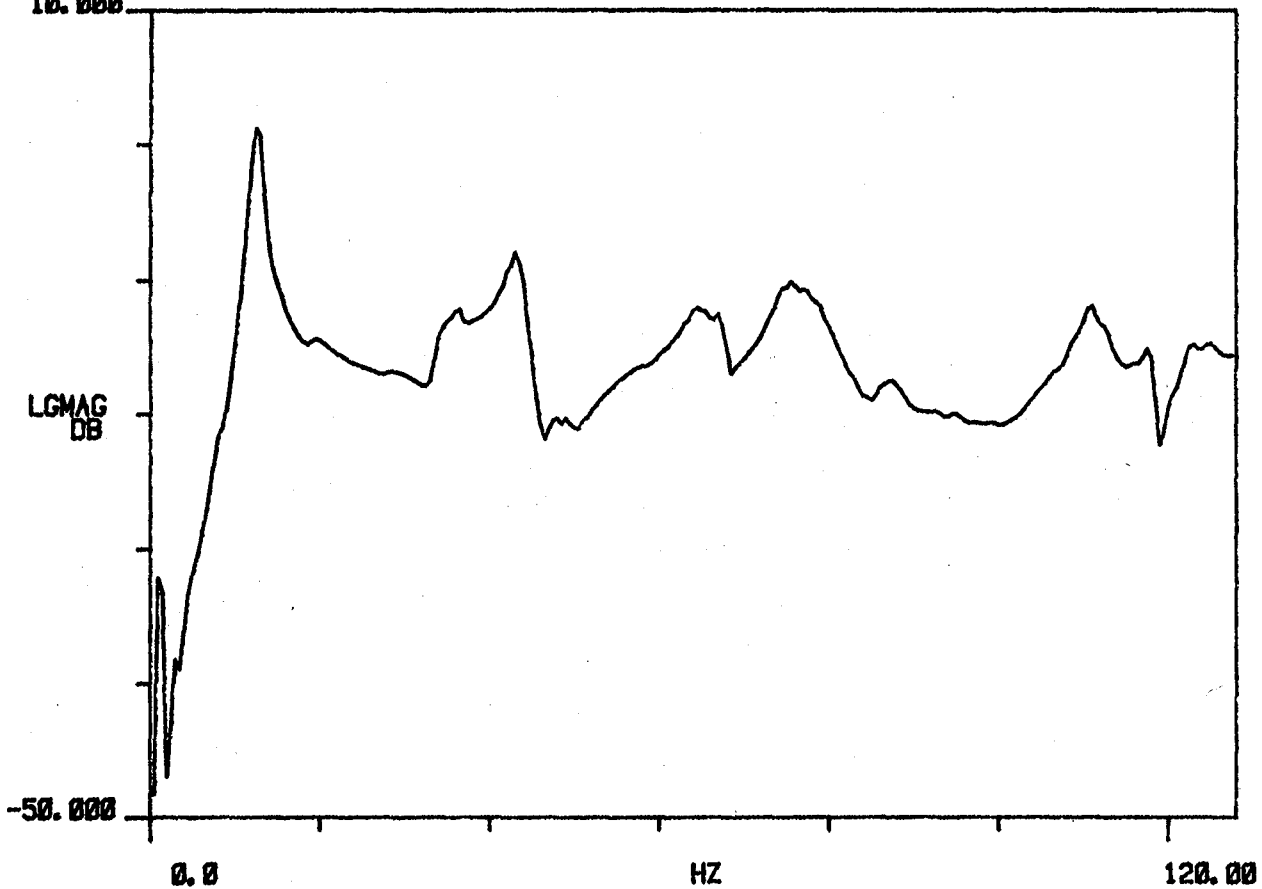
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.343	77.550	3.225	398.213	2.502
2	34.488	218.698	4.401	1.519	9.546
3	43.525	273.473	2.880	1.150	7.277
4	85.904	414.098	3.763	2.482	15.595
5	0.000	0.000	0.000	0.000	0.000
6	76.288	479.205	4.462	3.407	21.406
7	111.235	698.911	2.071	2.304	14.477

TRANS
10.000

R# 1

#A 325



FM2 BLADE 65. ACC. POS. #1. 01/02

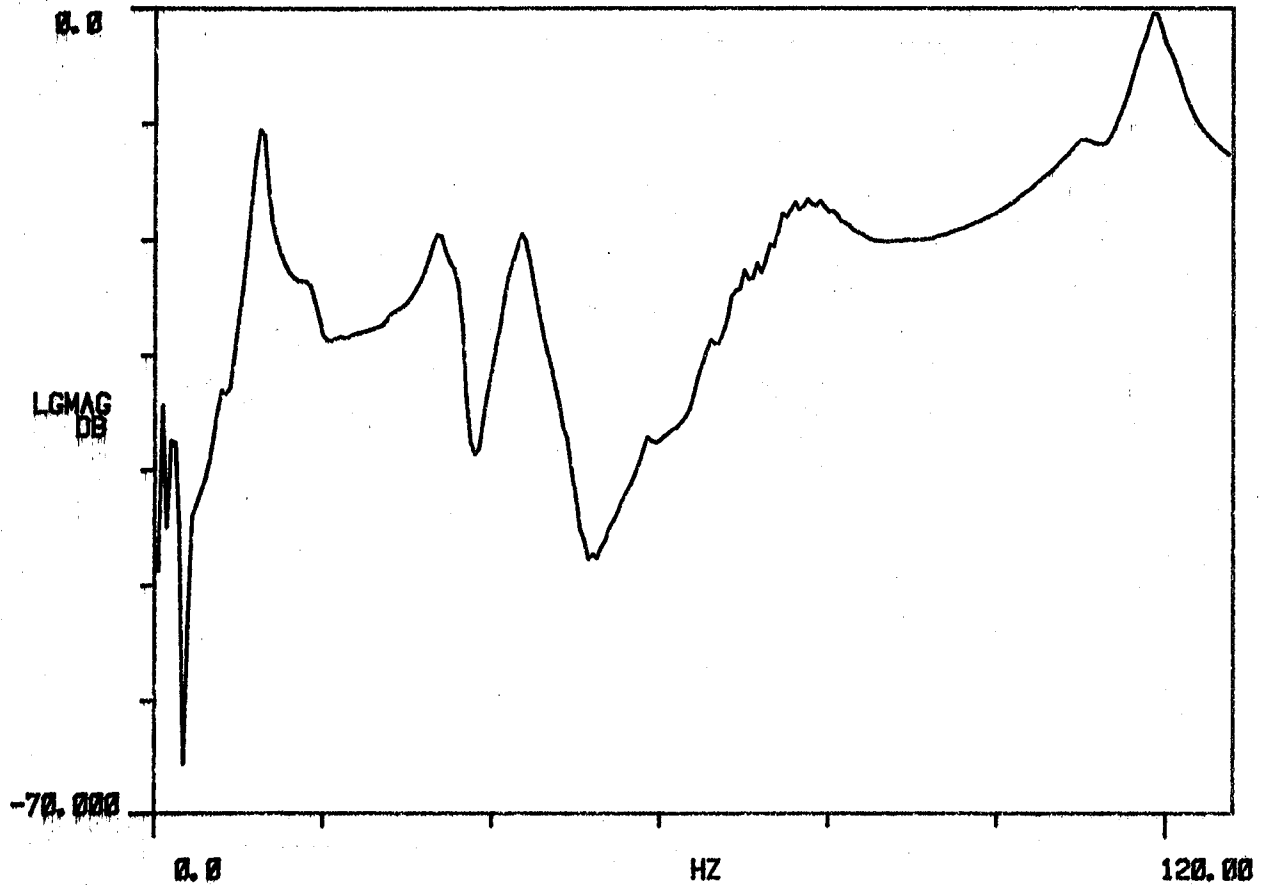
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.340	77.537	3.230	398.856	2.506
2	34.154	214.599	4.693	1.605	10.083
3	43.547	273.613	2.584	1.126	7.073
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	75.581	474.892	4.168	3.153	19.813
7	108.771	683.427	2.334	2.539	15.958
8	118.613	745.267	1.428	1.694	10.645

TRANS

R# 2

#A 325



FM2 BLADE 65. ACC. POS. #2. 01/82

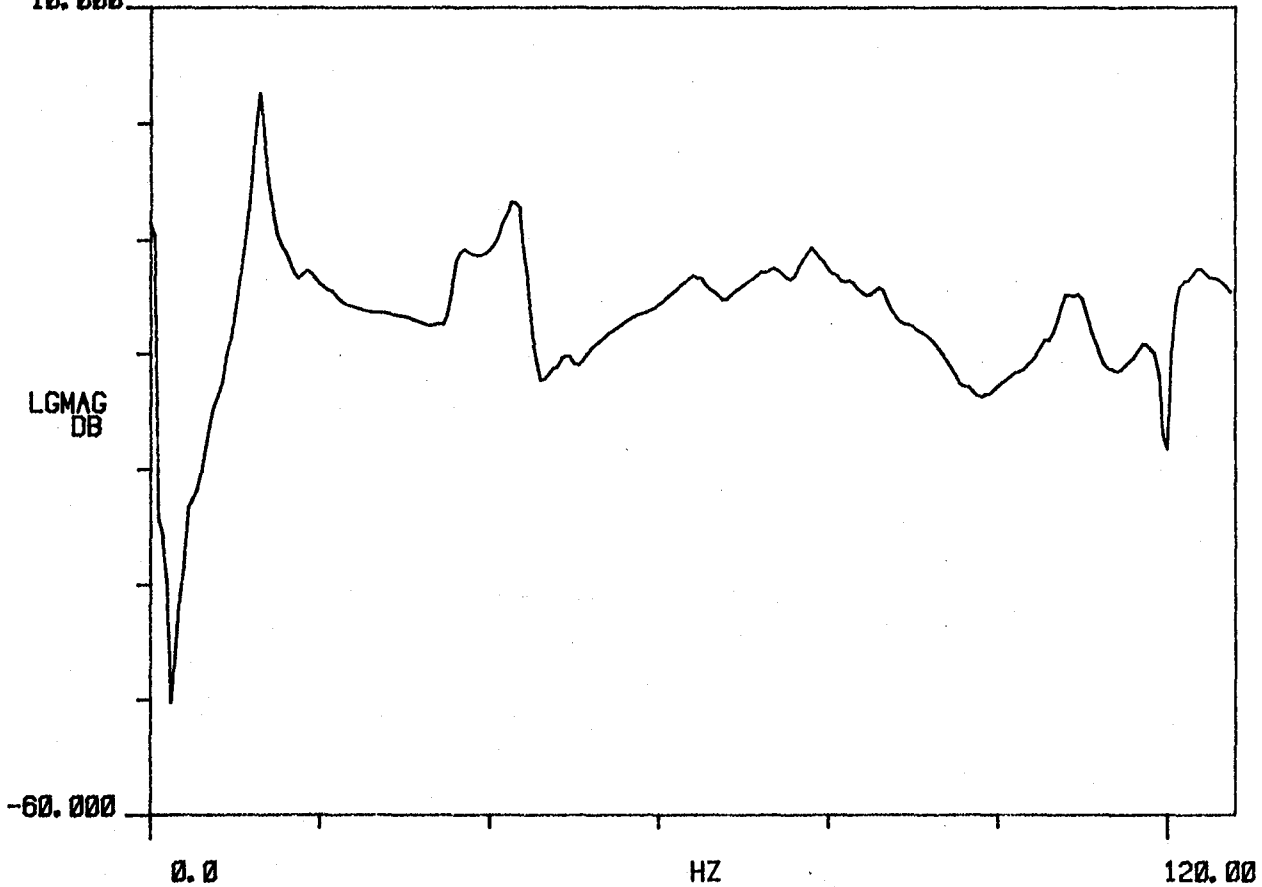
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.722	79.936	3.309	421.218	2.647
2	35.764	224.711	3.974	1.422	8.937
3	43.277	271.915	2.442	1.057	6.641
4	63.880	401.371	3.891	2.488	15.629
5	72.384	454.801	3.567	2.583	16.231
6	78.044	490.362	2.087	1.629	10.235
7	109.132	685.698	1.498	1.635	10.271
8	121.776	765.141	2.104	2.562	16.099

TRANS
10.000

R# 13

#A 325



FMS BLADE 66. ACC. POS. #1. 10/81

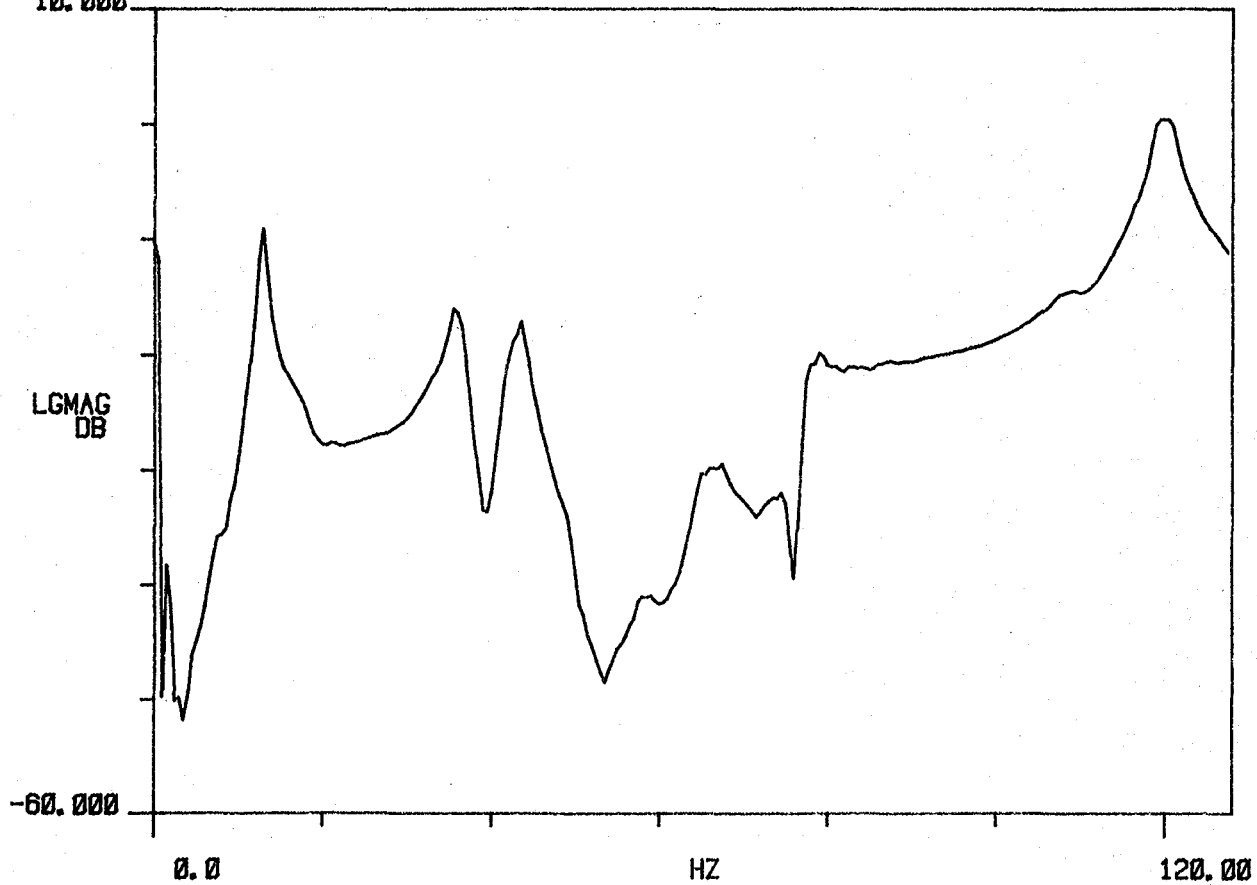
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.712	79.870	3.451	438.942 m	2.758
2	35.999	226.189	2.821	1.016	6.384
3	43.210	271.495	2.452	1.060	6.660
4	65.613	412.261	2.941	1.931	12.130
5	75.071	471.683	22.443 m	16.848 m	105.858 m
6	77.639	487.821	1.836	1.425	8.956
7	106.205	667.303	2.510	2.667	16.756
8	119.881	753.234	1.216	1.458	9.160

TRANS
10.000

R# 14

#A 325



FM5 BLADE 66. ACC. POS. #2. 10/81

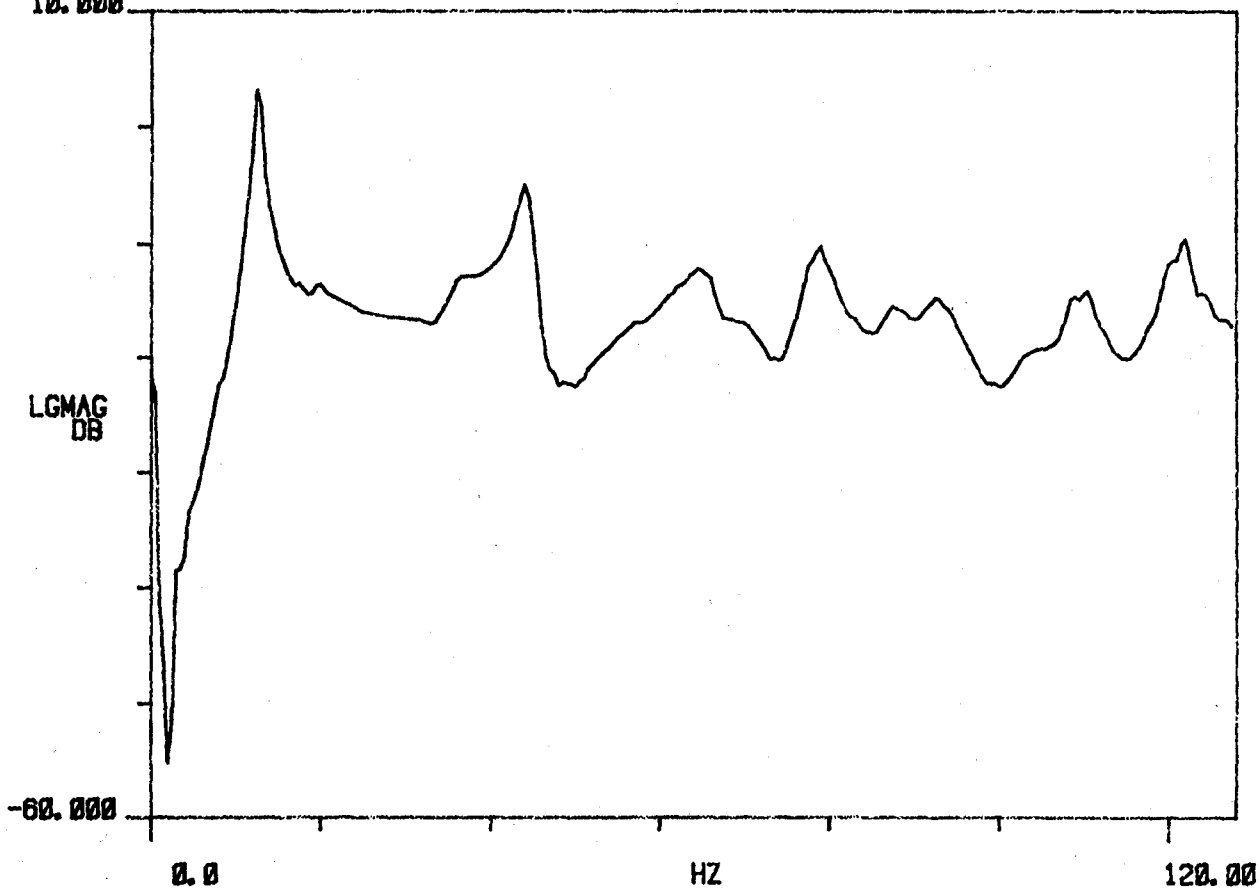
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.400	77.911	2.781	344.916 m	2.167
2	34.595	217.366	6.851	2.376	14.927
3	44.236	277.943	1.958	865.340 m	5.437
4	64.989	408.338	4.051	2.635	16.555
5	73.687	462.992	1.176	866.769 m	5.446
6	78.565	493.637	1.755	1.379	8.665
7	109.882	690.411	1.809	1.988	12.493
8	121.873	765.750	828.856 m	1.010	6.347

TRANS
10.000

R# 23

#A 325



FM3 BLADE 67. ACC. POS. #1. 01/82

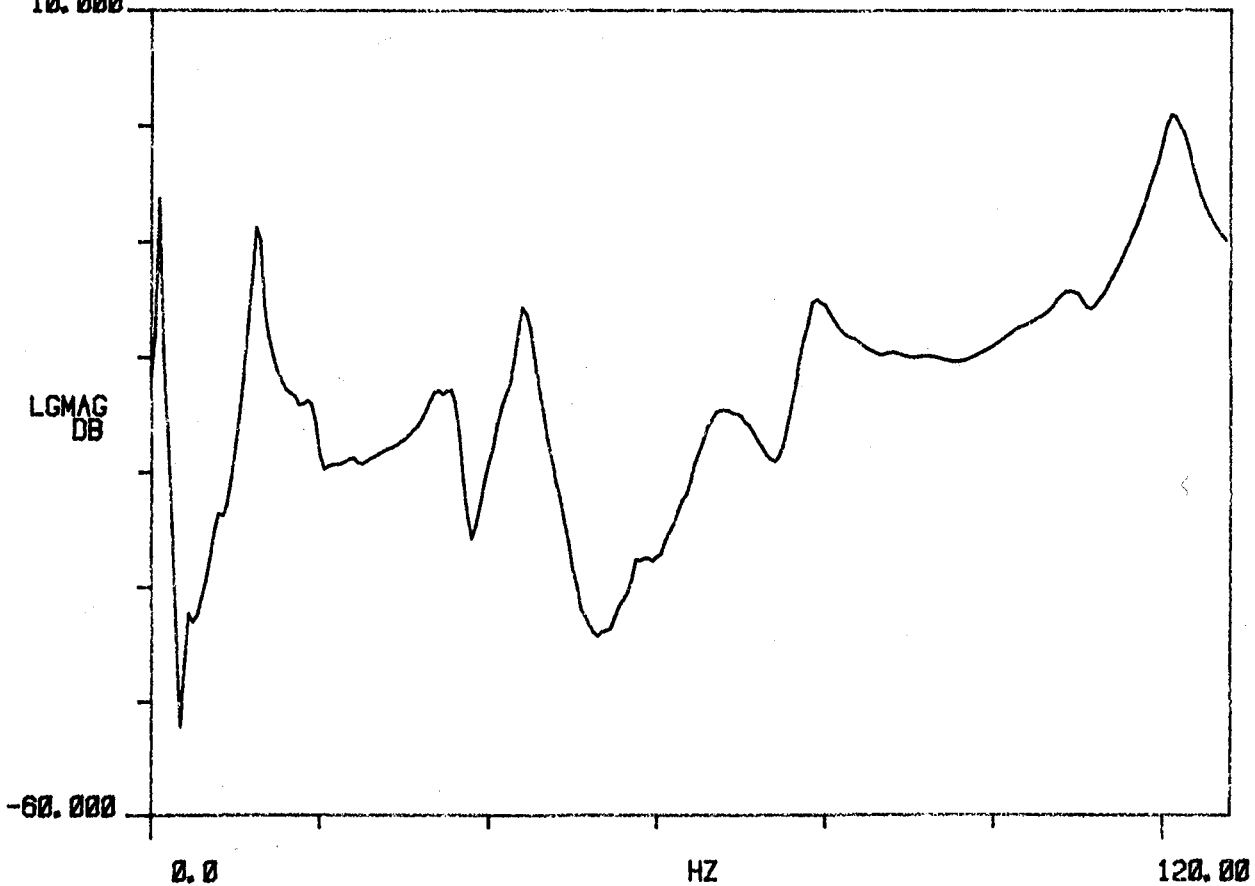
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.412	77.989	2.967	368.410 m	2.315
2	35.359	222.166	4.757	1.684	10.579
3	44.316	278.446	1.985	879.957 m	5.529
4	68.548	430.702	4.547	3.120	19.603
5	0.000	0.000	0.000	0.000	0.000
6	78.589	493.789	2.153	1.692	10.632
7	108.768	683.408	1.194	1.299	8.164
8	121.329	762.331	1.328	1.611	10.122

TRANS
10.000

R# 24

#A 325



FM3 BLADE 67. ACC. POS. #2. 01/82

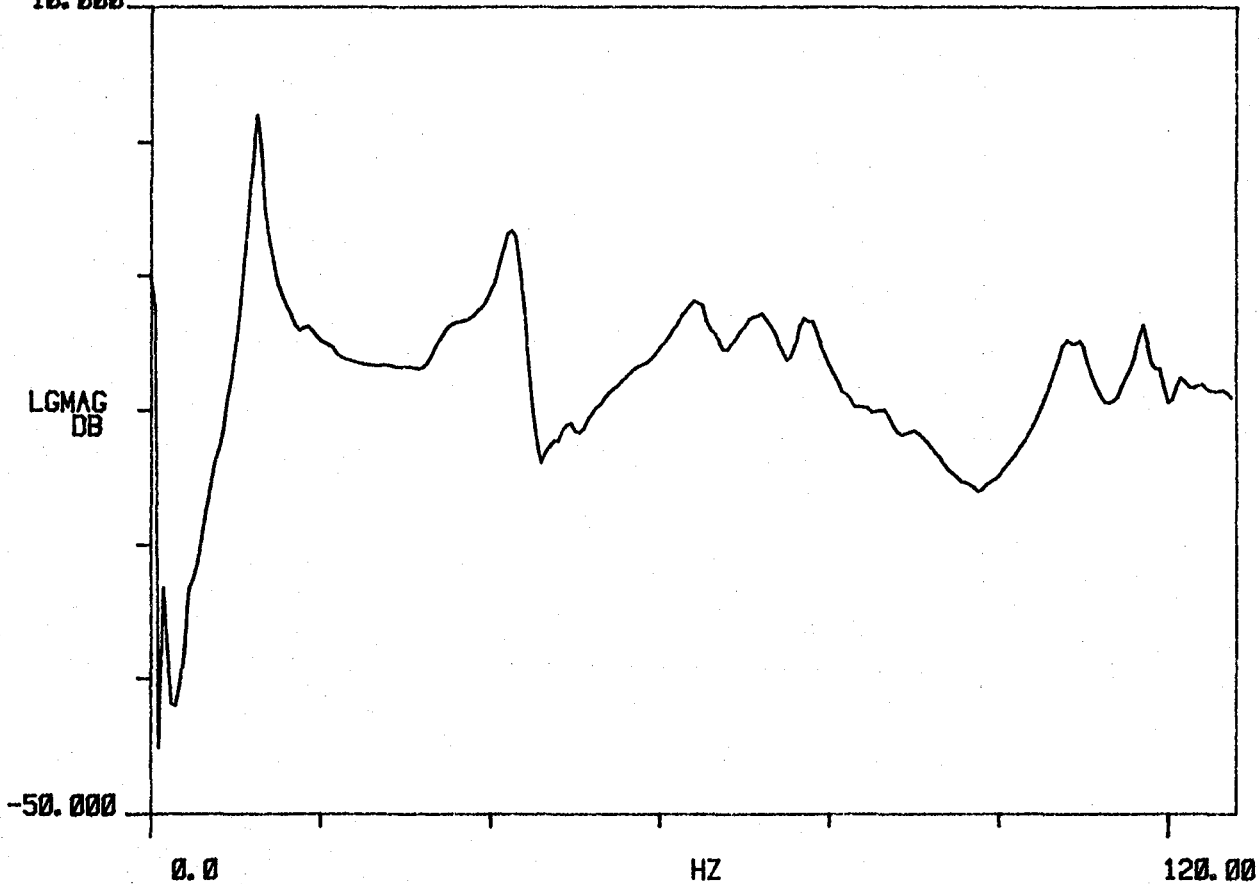
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.310	77.344	3.496	430.549	2.705
2	33.248	208.901	9.706	3.242	20.372
3	42.751	268.611	2.418	1.034	6.498
4	64.046	402.410	3.114	1.995	12.537
5	71.993	452.343	2.833	2.041	12.822
6	77.681	488.084	1.669	1.296	8.145
7	108.677	682.839	2.026	2.203	13.839
8	118.005	741.449	894.381	1.055	6.632

TRANS
10.000

R# 15

#A 325



FM5 BLADE 68. ACC. POS. #1. 10/81

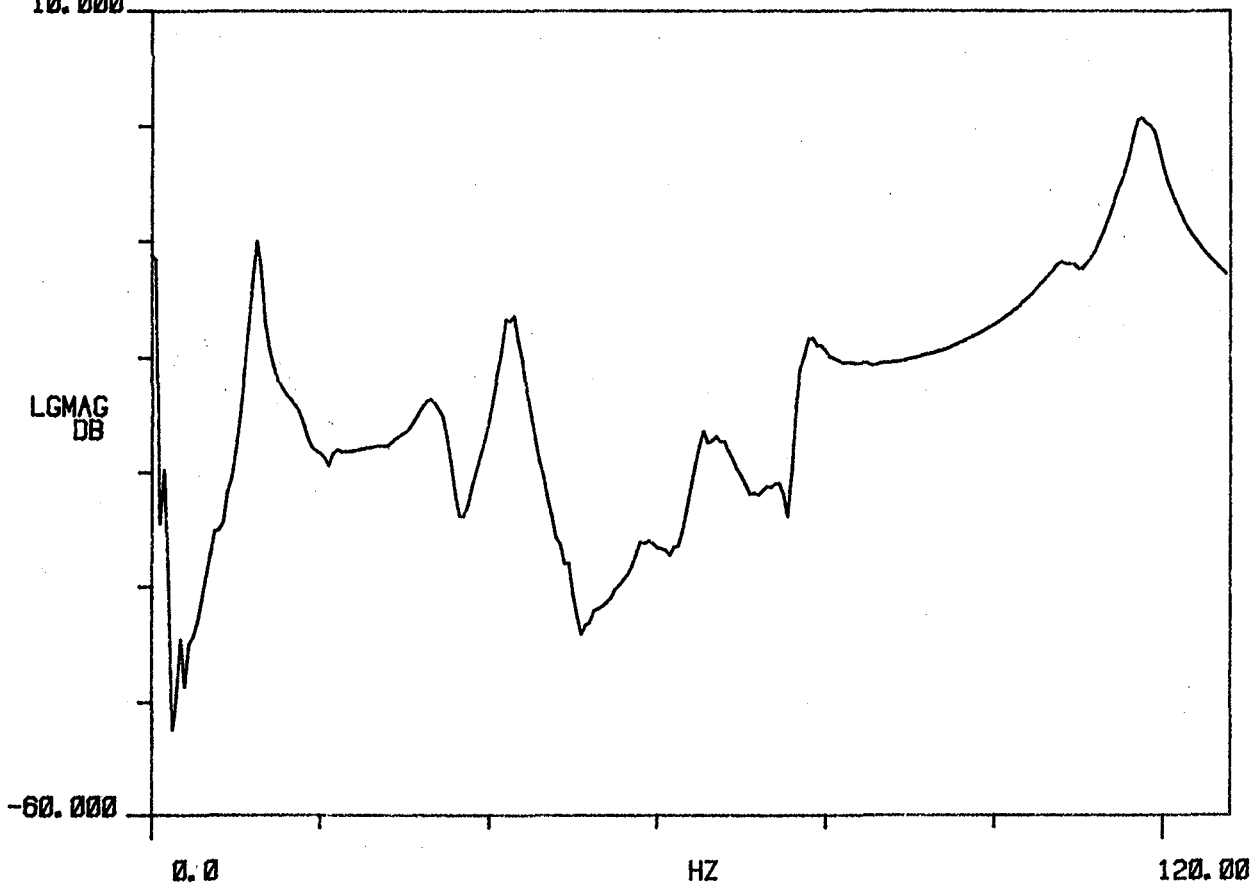
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.305	77.313	3.554	437.546	2.749
2	33.841	212.628	5.299	1.796	11.283
3	42.613	267.743	2.200	937.788	5.892
4	65.648	412.480	2.860	1.878	11.801
5	0.000	0.000	0.000	0.000	0.000
6	77.250	485.379	1.956	1.511	9.496
7	106.482	669.044	2.129	2.268	14.247
8	117.732	739.732	1.388	1.634	10.266

TRANS
10.000

R# 16

#A 325



FM5 BLADE 68, ACC. POS. #2. 10/81

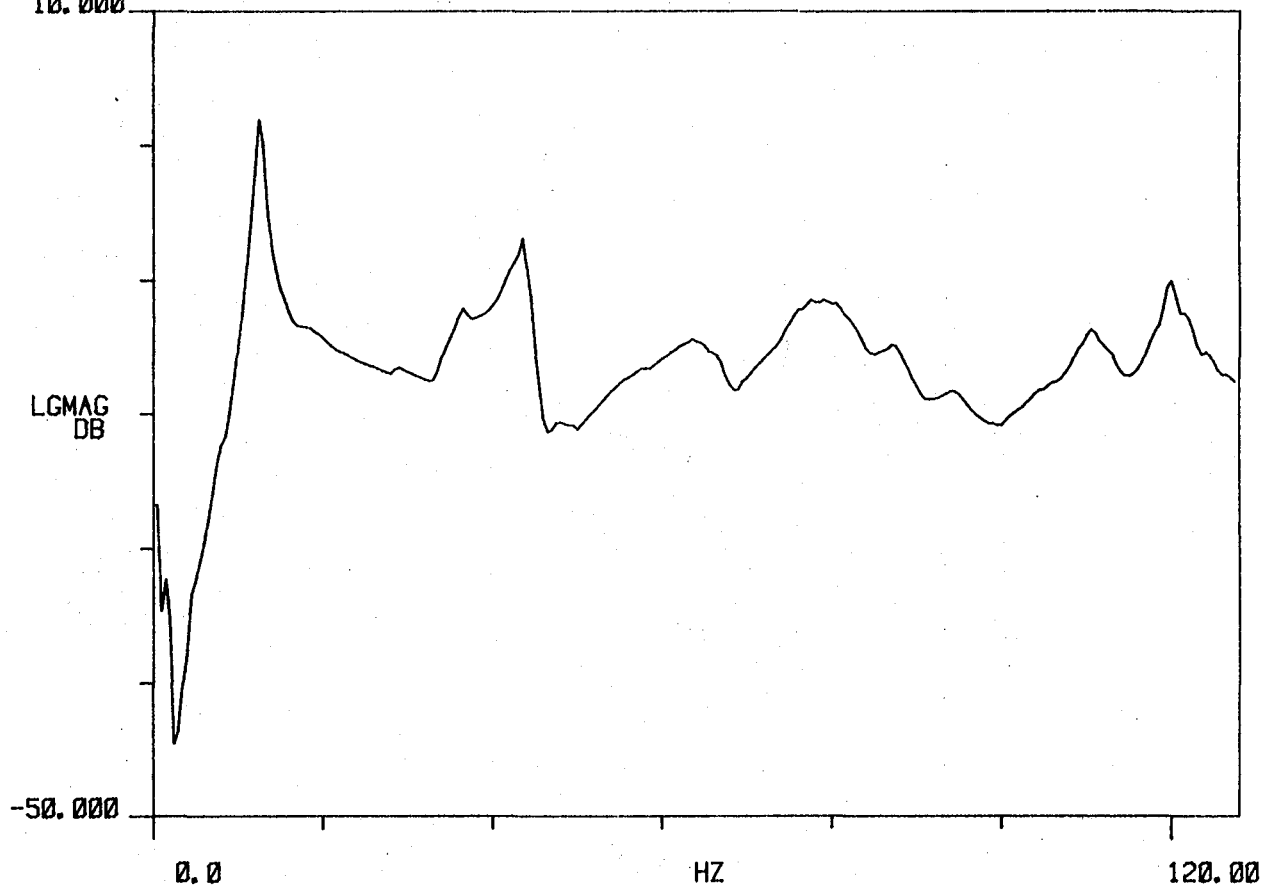
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.399	77.906	3.541	439.301	2.760
2	35.221	221.301	5.206	1.836	11.537
3	43.729	274.760	2.533	1.108	6.962
4	0.000	0.000	0.000	0.000	0.000
5	64.430	404.823	5.268	3.399	21.355
6	78.813	495.198	5.682	4.485	28.182
7	110.815	696.271	2.415	2.677	16.821
8	120.522	757.260	910.110	1.097	6.892

TRANS
10.000

R#: 11

#A: 325



FM2 BLADE 69. ACC. POS. #1. 01/82

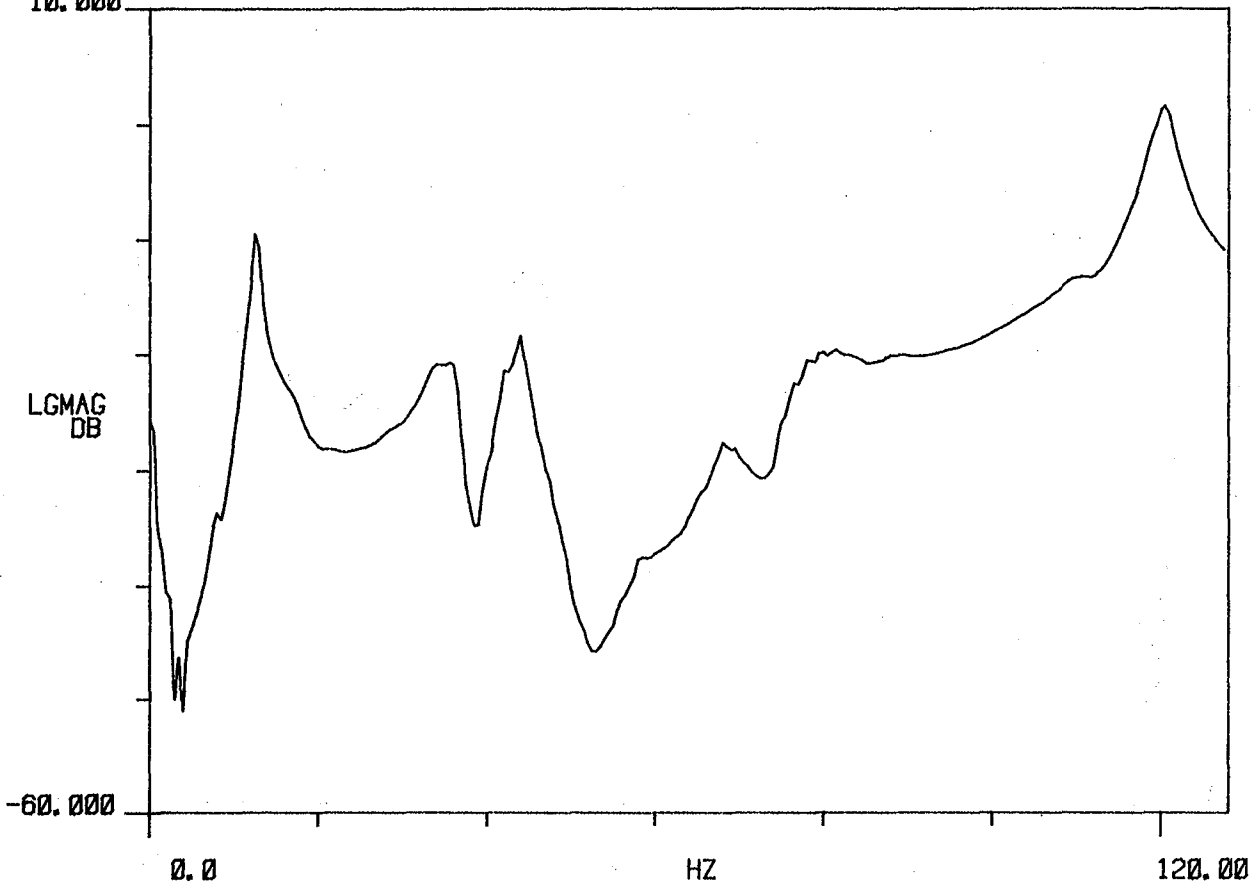
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.430	78.098	3.611	449.176	2.822
2	35.515	223.150	5.326	1.894	11.903
3	43.743	274.844	2.768	1.211	7.609
4	0.000	0.000	0.000	0.000	0.000
5	69.454	436.394	3.841	2.669	16.773
6	77.339	485.934	4.572	3.539	22.238
7	107.600	676.073	1.410	1.517	9.533
8	120.217	755.348	1.215	1.461	9.178

TRANS
10.000

R#: 12

#A: 325



FM2 BLADE 69. ACC. POS. #2. 01/82

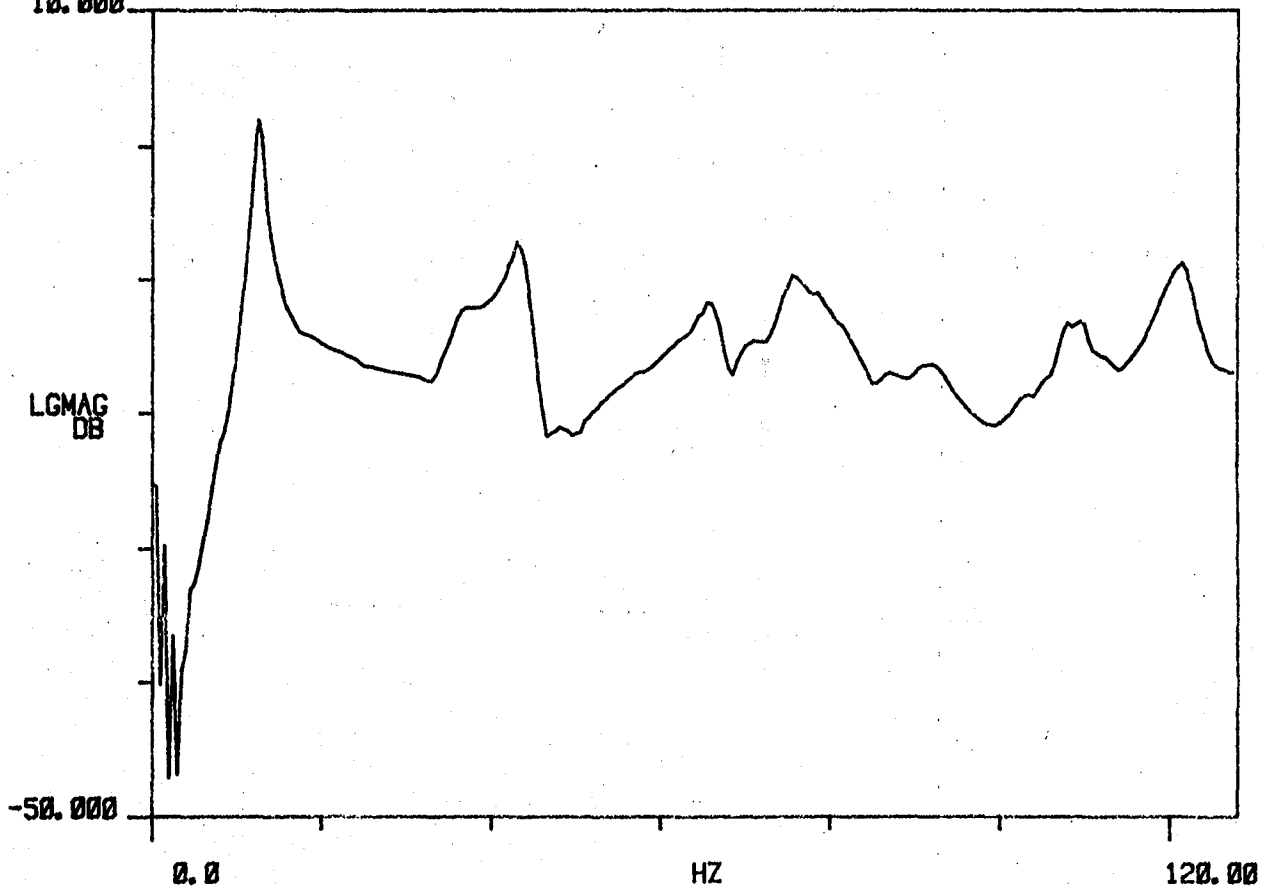
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.476	78.386	3.853	481.009	3.022
2	35.027	220.081	7.798	2.740	17.215
3	43.621	274.078	2.741	1.196	7.516
4	66.170	415.759	2.197	1.454	9.136
5	0.000	0.000	0.000	0.000	0.000
6	75.720	475.765	3.605	2.731	17.161
7	108.469	681.532	1.976	2.143	13.467
8	121.792	765.241	1.223	1.489	9.358

TRANS
10.000

R# 3

#A 325



FM3 BLADE 70. ACC. POS. #1. 01/82

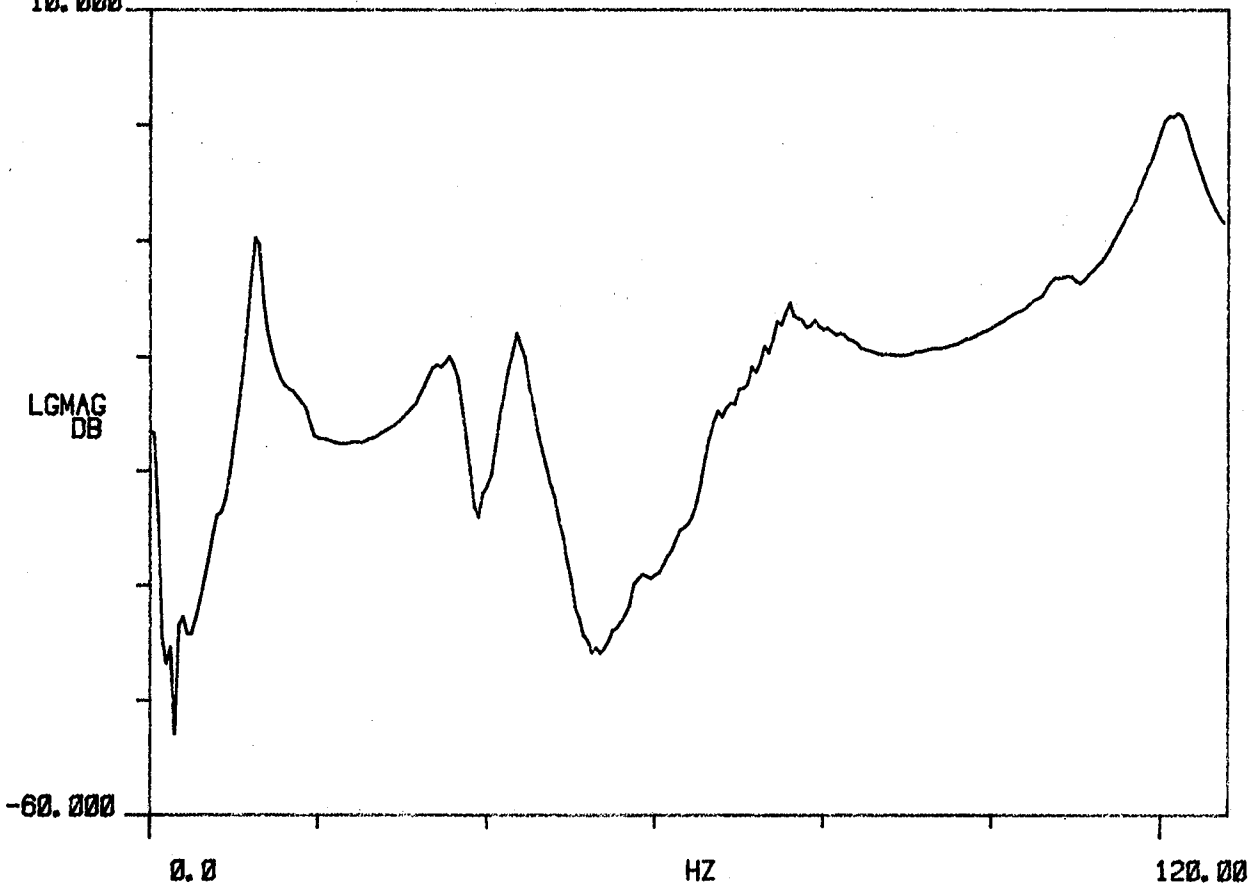
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.479	78.408	3.830	478.303	3.005
2	35.596	223.657	5.309	1.892	11.890
3	43.595	273.918	2.410	1.051	6.604
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	75.200	472.495	3.428	2.579	16.207
7	106.965	672.078	-100.806	-107.827	-677.499
8	121.589	763.964	1.713	2.084	13.092

TRANS
10.000

R# 4

#A 325



FM3 BLADE 70. ACC. POS. #2. 01/82

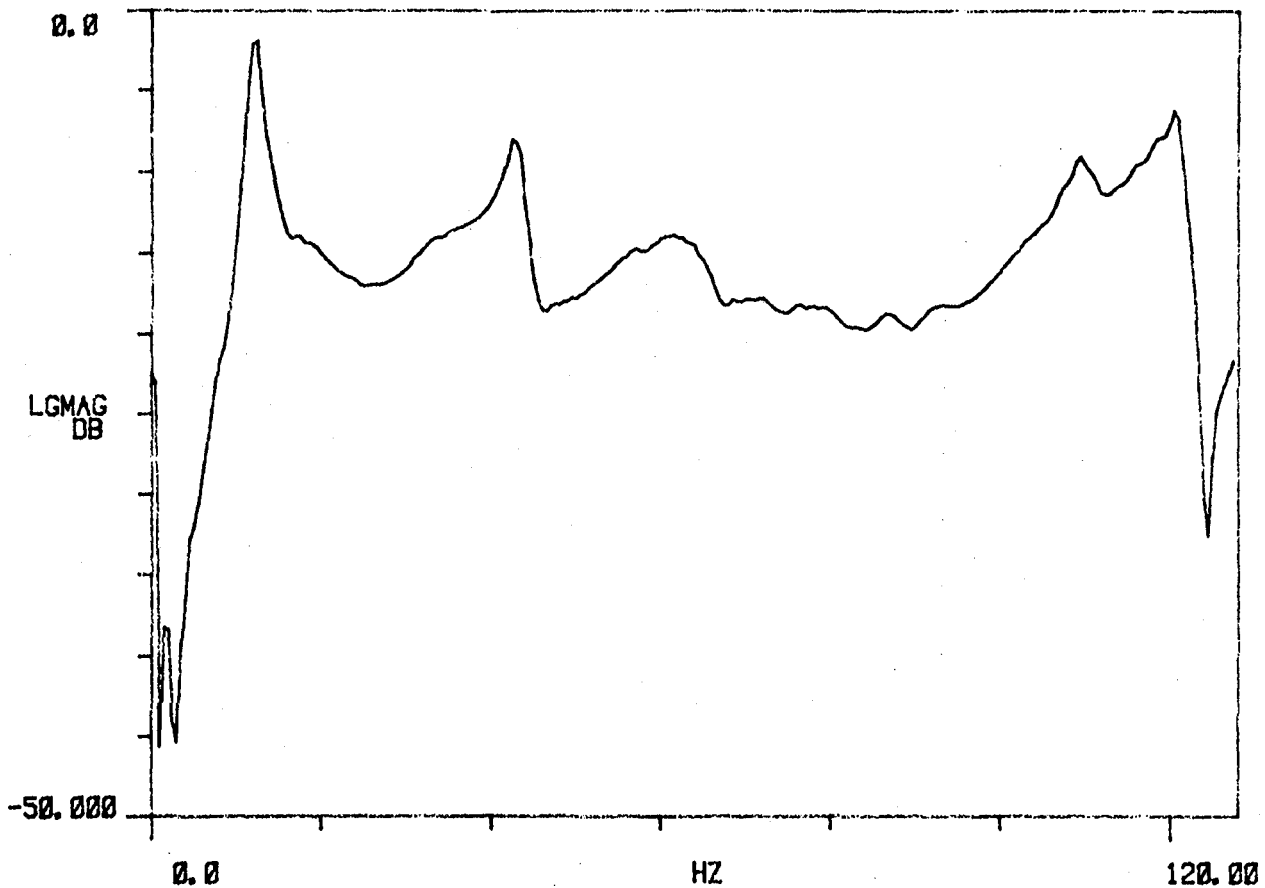
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	λ	HZ	R/S
1	12.034	75.615	5.675	684.036	4.298
2	30.668	192.694	24.180	7.642	48.018
3	43.212	271.508	2.598	1.123	7.057
4	63.519	399.100	7.925	5.050	31.728
5	72.318	454.388	-1.759	-1.273	-7.995
6	80.714	507.138	724.900	585.116	3.676
7	109.926	690.683	2.611	2.872	18.043
8	121.026	760.428	1.448	1.750	10.994

TRANS

R# 21

#A 325



FM3 BLADE 71. ACC. POS. #1. 01/82

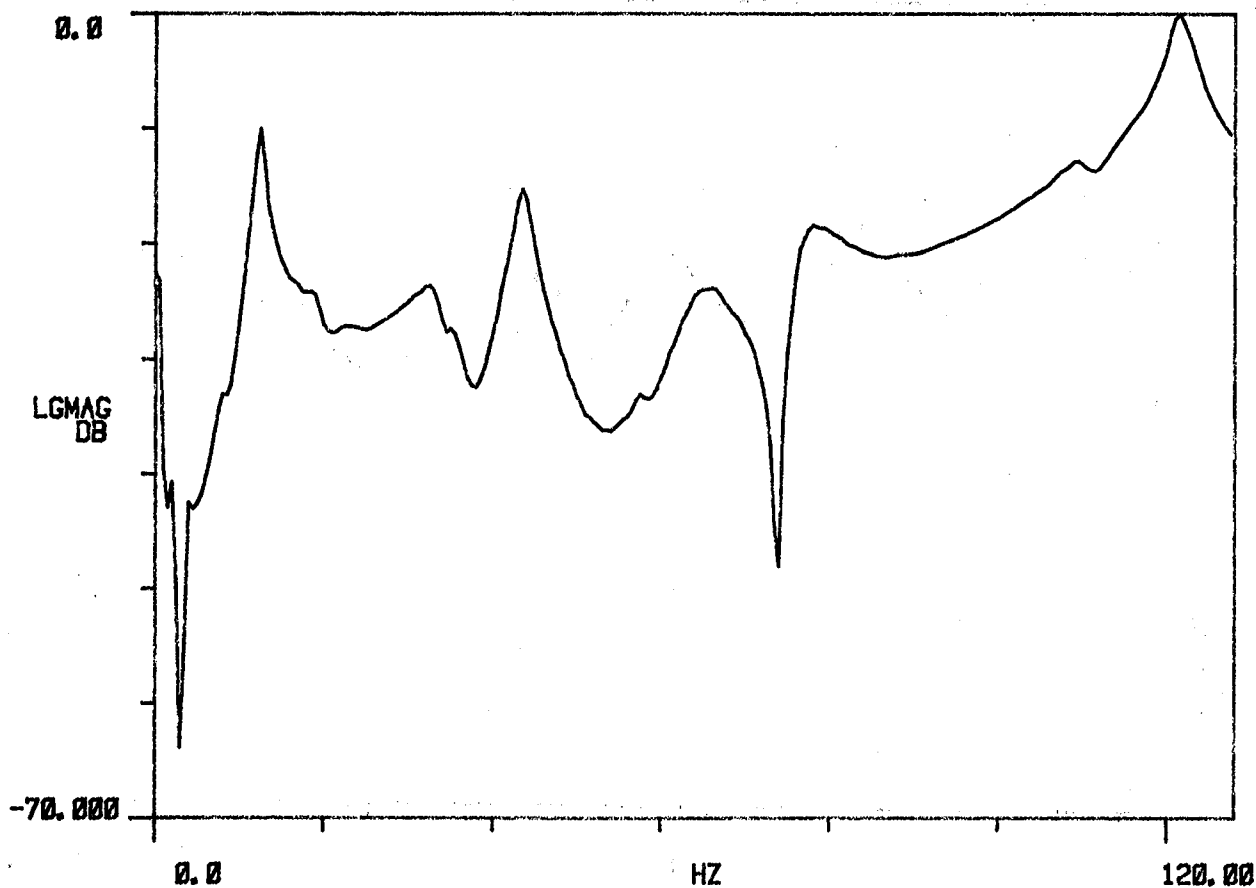
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	ζ	HZ	R/S
1	12.256	77.009	4.192	514.281	3.231
2	32.651	205.152	6.977	2.284	14.349
3	43.512	273.395	2.262	984.413	6.185
4	65.269	410.095	4.891	3.196	20.080
5	0.000	0.000	0.000	0.000	0.000
6	76.841	482.808	3.027	2.327	14.621
7	107.750	677.012	1.984	2.138	13.432
8	121.512	763.484	1.348	1.638	10.290

TRANS

R# 22

#A 325



FM3 BLADE 71. ACC. POS. #2. 01/82

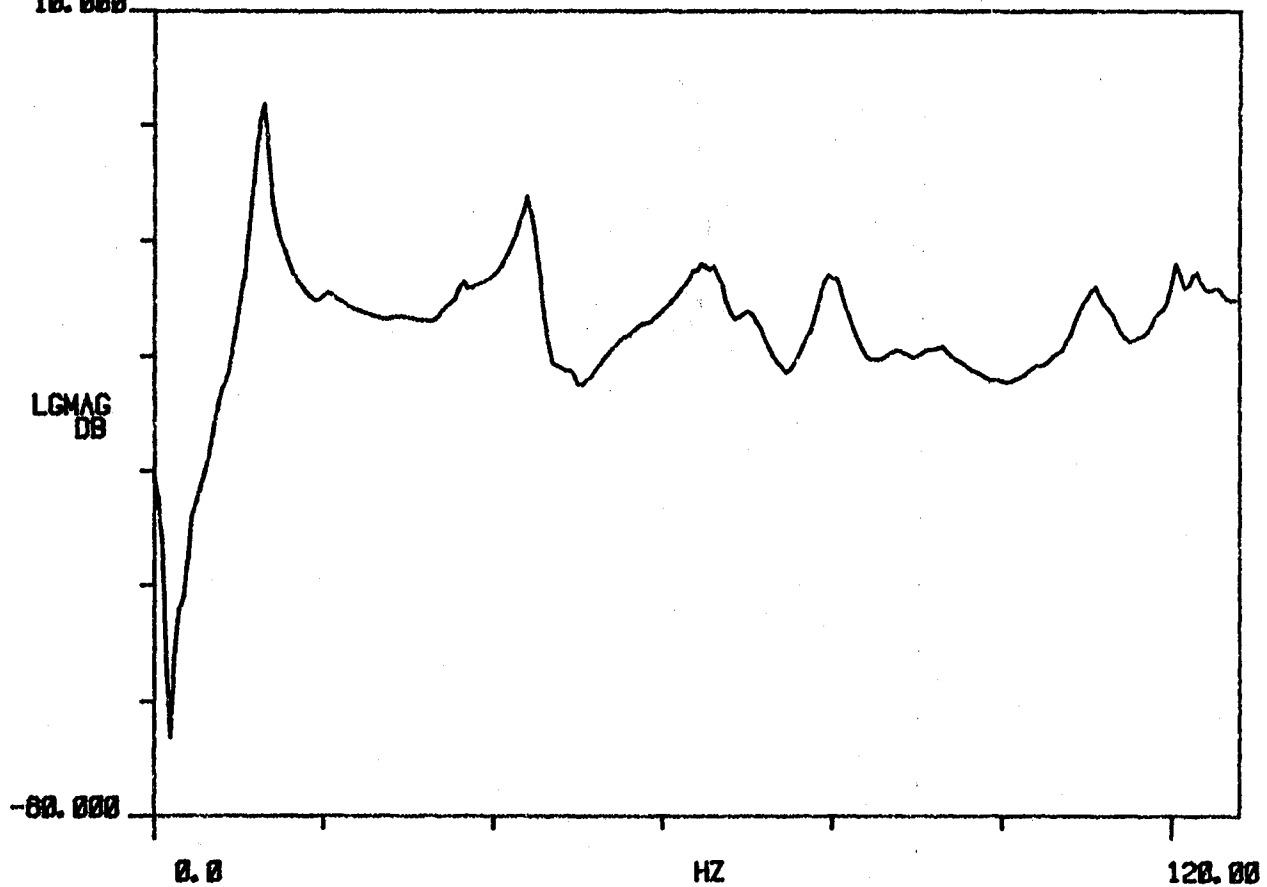
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.570	78.982	3.179	388.853	2.512
2	35.041	220.168	8.012	2.110	13.268
3	44.271	278.183	2.182	988.428	8.872
4	85.411	418.988	3.819	2.588	15.787
5	72.217	453.753	1.824	1.173	7.378
6	79.852	581.724	1.885	1.346	8.454
7	118.758	885.988	1.883	2.187	13.882
8	121.422	782.918	1.884	1.219	7.857

TRANS
10.000

R# 7

#A 325



FM2 BLADE 72. ACC. POS. #1. 01/82

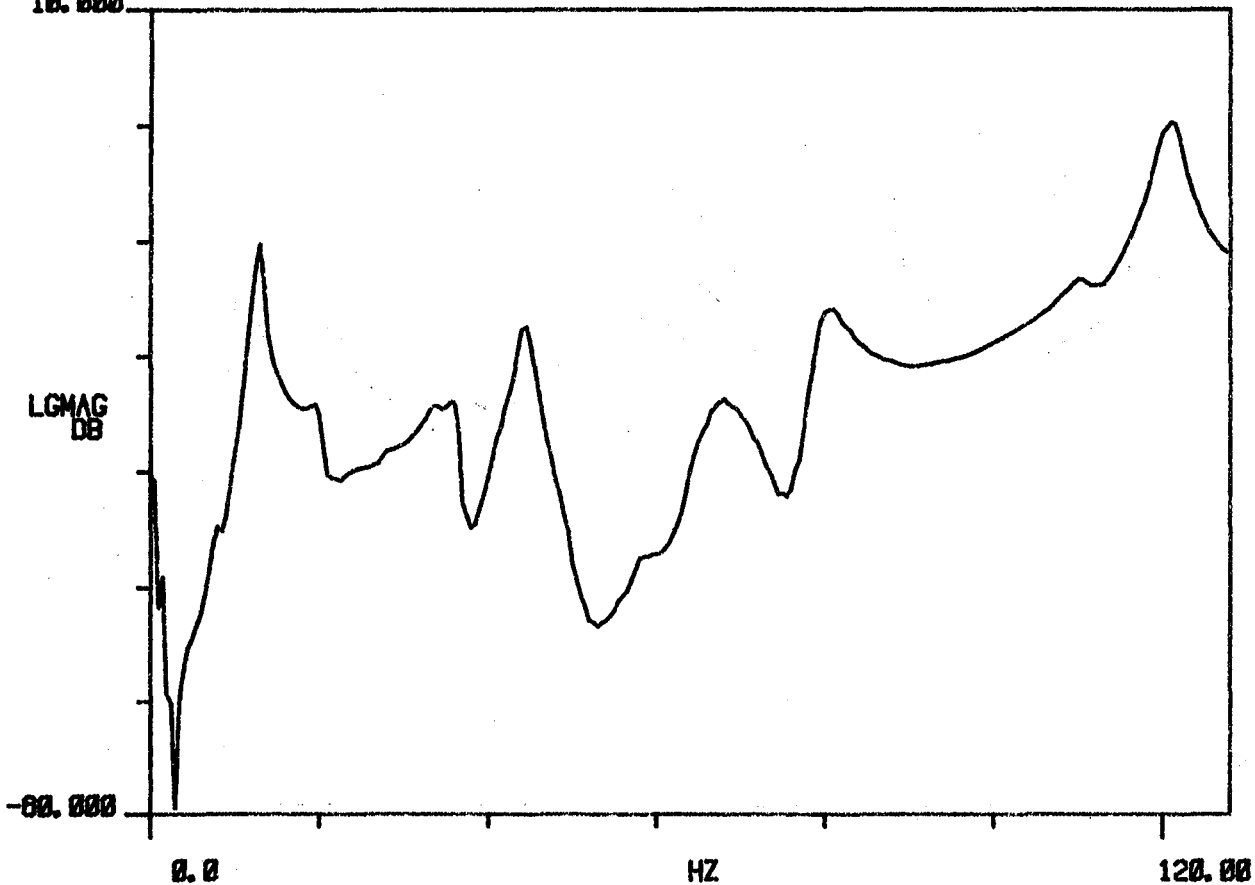
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.598	79.153	3.238	488.114	2.584
2	35.925	225.728	4.383	1.578	9.903
3	44.378	278.848	2.285	978.855	8.149
4	55.988	351.882	2.432	1.382	8.555
5	68.158	428.288	4.489	3.863	18.242
6	79.879	501.894	2.158	1.724	18.831
7	108.848	683.915	1.235	1.345	8.448
8	128.838	759.247	1.237	1.485	9.395

TRANS
10.000

R# 8

#A 325



FM2 BLADE 72. ACC. POS. #2. 01/82

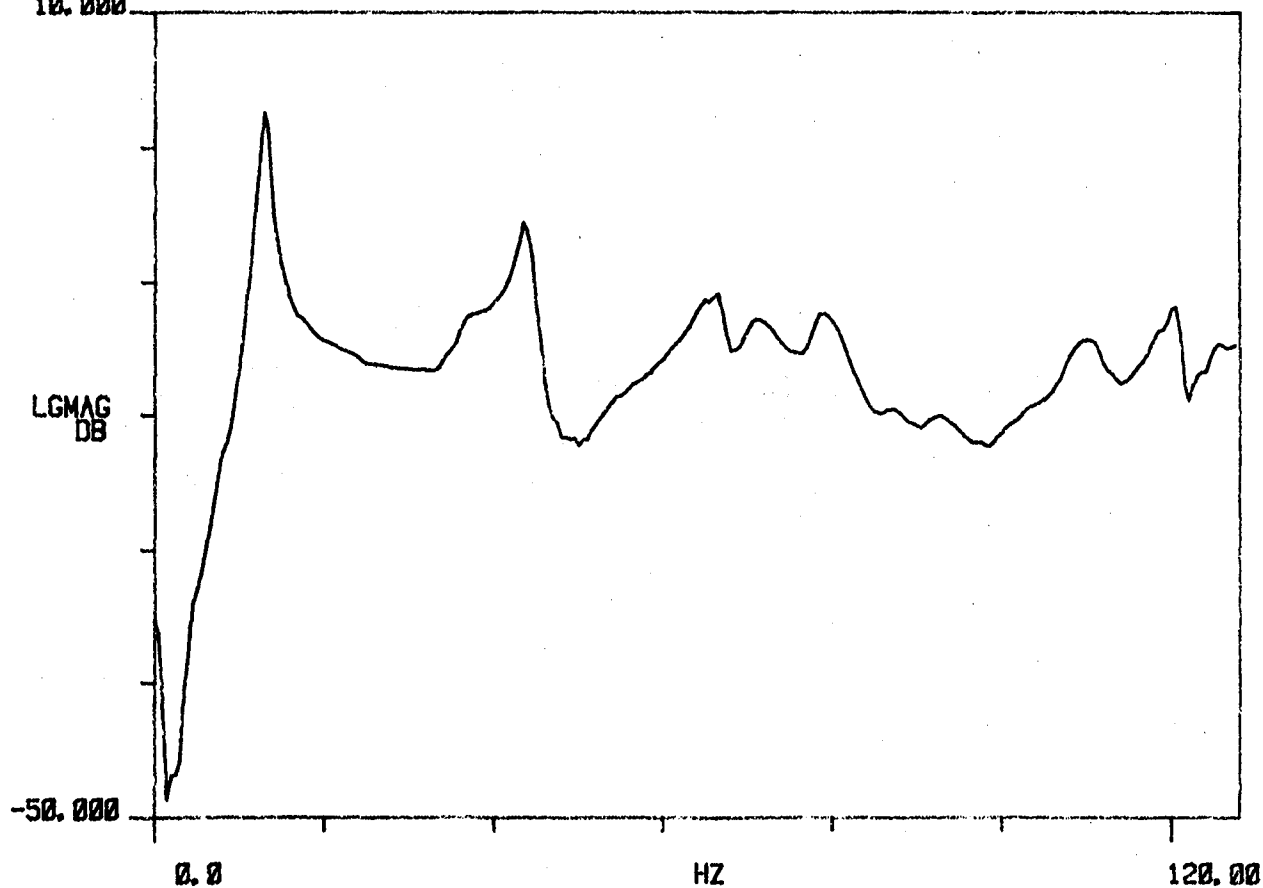
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.809	80.481	2.804	359.303	2.258
2	34.084	214.155	8.145	2.785	17.501
3	43.943	276.101	2.121	932.150	5.857
4	66.126	415.483	2.980	1.958	12.304
5	71.582	449.636	2.678	1.917	12.048
6	79.548	499.815	2.330	1.854	11.648
7	109.803	689.913	2.133	2.343	14.721
8	120.757	758.736	1.009	1.219	7.659

TRANS
10.000

R# 29

#A 325



FM3 BLADE 73. ACC. POS. #1. 01/82

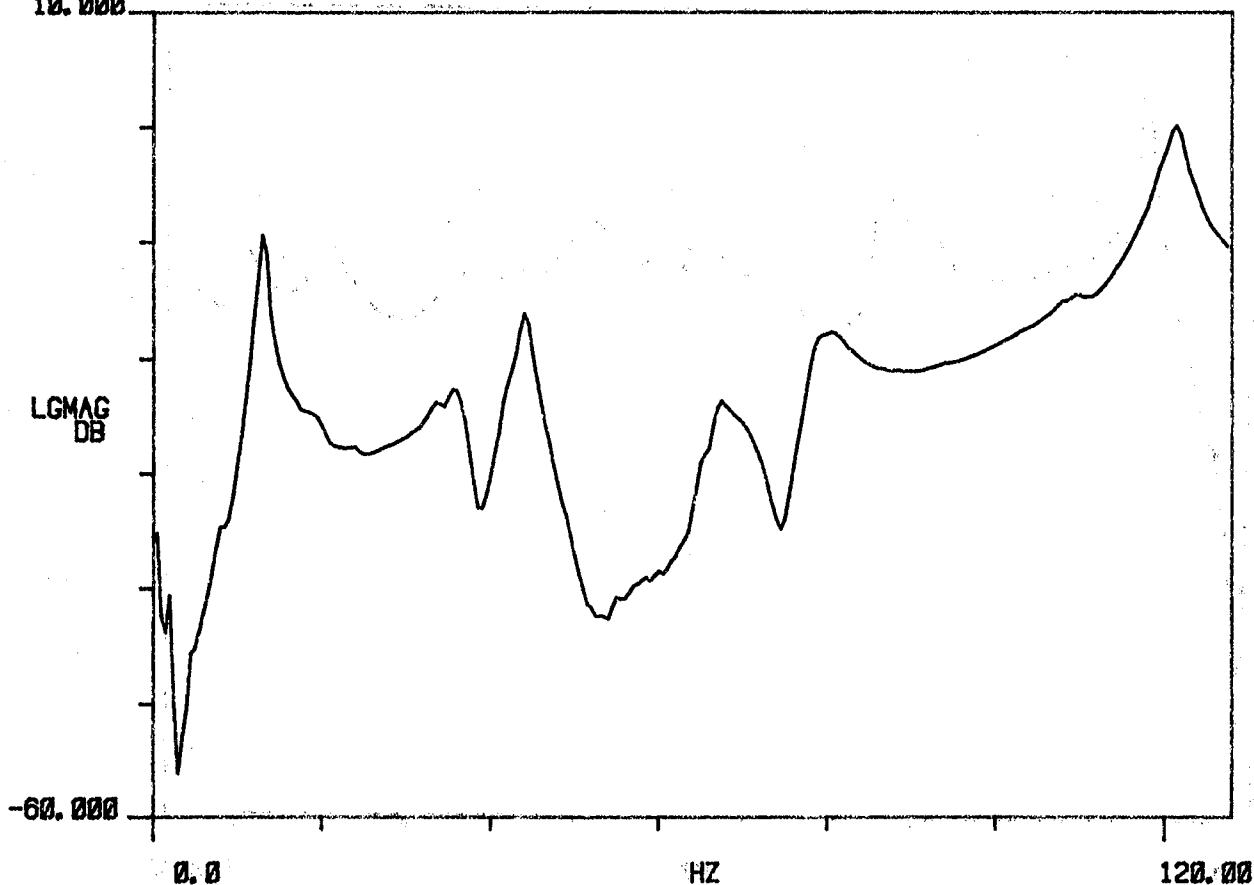
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.815	80.522	2.780	356.361	2.239
2	36.227	227.620	5.072	1.840	11.560
3	44.023	276.607	2.183	961.091	6.039
4	67.800	426.002	3.466	2.351	14.774
5	0.000	0.000	0.000	0.000	0.000
6	78.932	495.944	2.900	2.290	14.391
7	107.093	672.883	606.375	649.395	4.080
8	121.254	761.861	1.295	1.570	9.867

TRANS
10.000

R# 30

#A 325



FM3 BLADE 73. ACC. POS. #2. 01/82

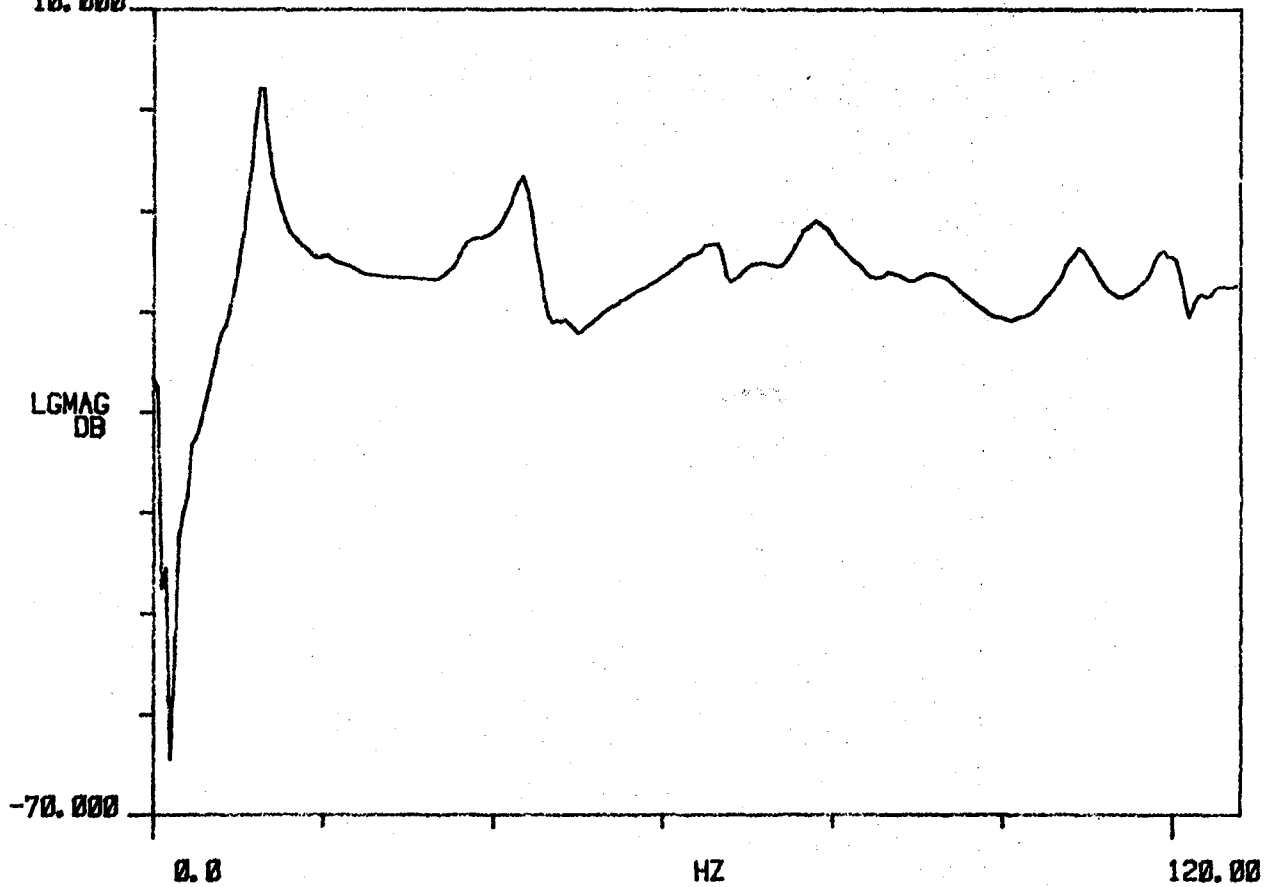
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	X	HZ	R/S
1	12.463	78.305	3.134	390.718 m	2.455
2	34.920	219.411	7.583	2.656	16.686
3	43.724	274.724	2.336	1.022	6.421
4	66.669	418.891	2.882	1.922	12.076
5	69.972	439.649	35.061 m	24.533 m	154.144 m
6	78.039	490.334	2.993	2.336	14.681
7	109.129	685.680	1.990	2.172	13.648
8	120.219	755.358	1.051	1.263	7.939

TRANS
10.000

R# 9

#A 325



FM3 BLADE 74. ACC. POS. #1. 01/82

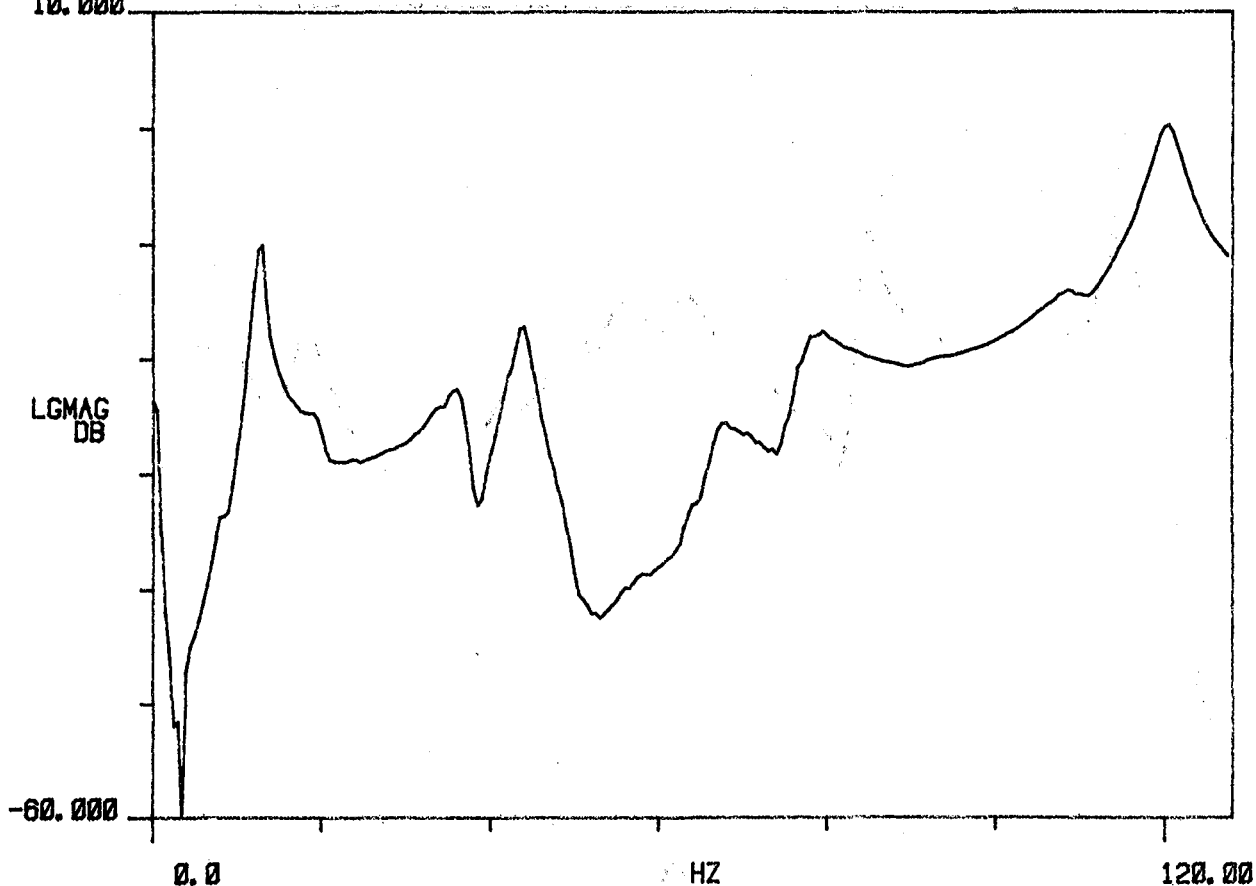
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.474	78.373	3.185	397.523	2.498
2	36.403	228.727	4.466	1.628	10.228
3	43.852	275.529	2.462	1.080	6.786
4	69.010	433.605	4.599	3.177	19.964
5	0.000	0.000	0.000	0.000	0.000
6	77.548	487.249	3.195	2.479	15.578
7	107.554	675.779	911.832	980.749	6.162
8	120.242	755.500	1.441	1.732	10.885

TRANS
10.000

R# 10

#A 325



FM3 BLADE 74. ACC. POS. #2. 01/82

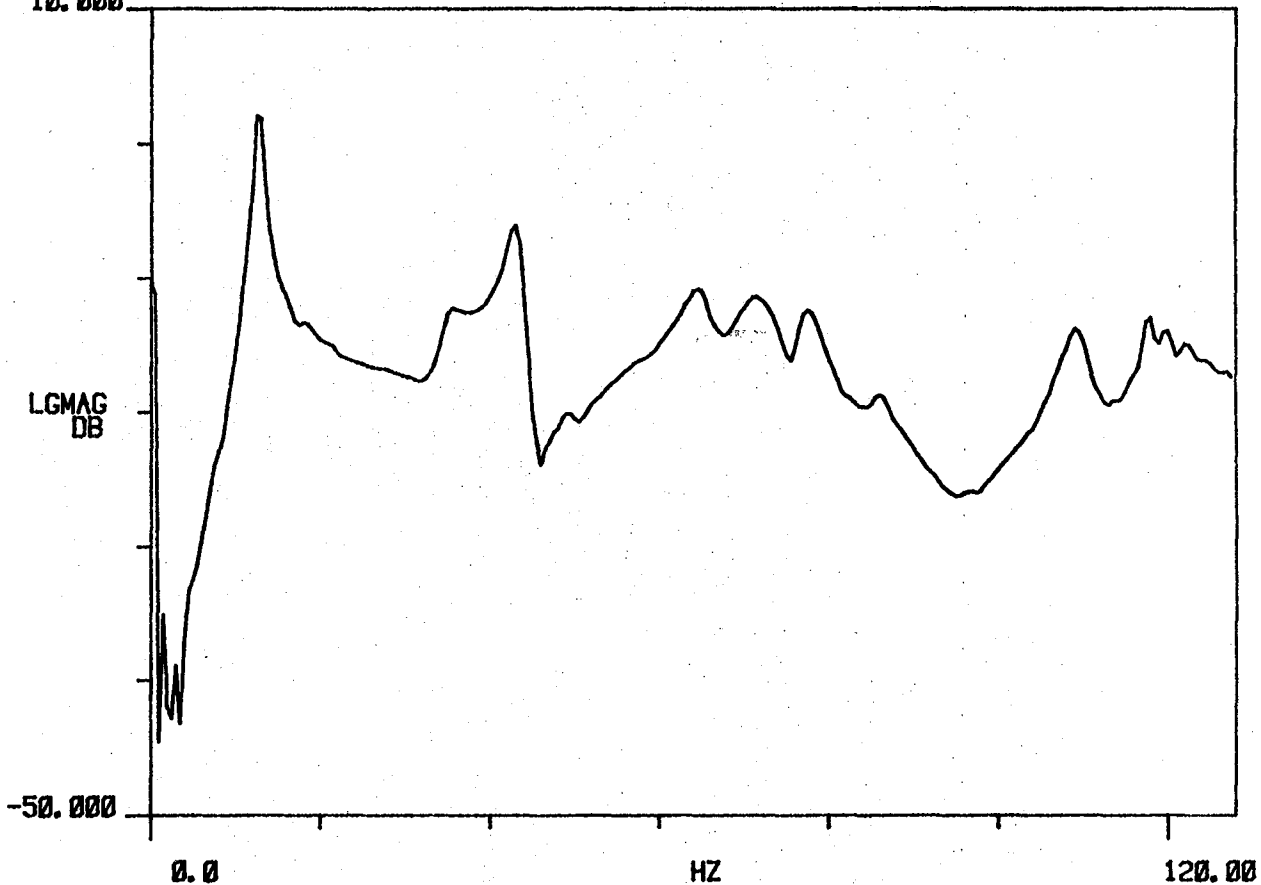
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.451	78.233	3.004	374.190	2.351
2	34.342	215.780	5.376	1.849	11.617
3	43.138	271.042	2.023	872.871	5.484
4	64.483	405.161	2.623	1.692	10.630
5	72.074	452.856	2.854	2.058	12.931
6	77.835	489.054	1.787	1.391	8.739
7	109.076	685.344	1.558	1.699	10.677
8	118.981	747.578	821.978	978.028	6.145

TRANS
10.000

R# 11

#A 325



FM5 BLADE 75. ACC. POS. #1, 10/81

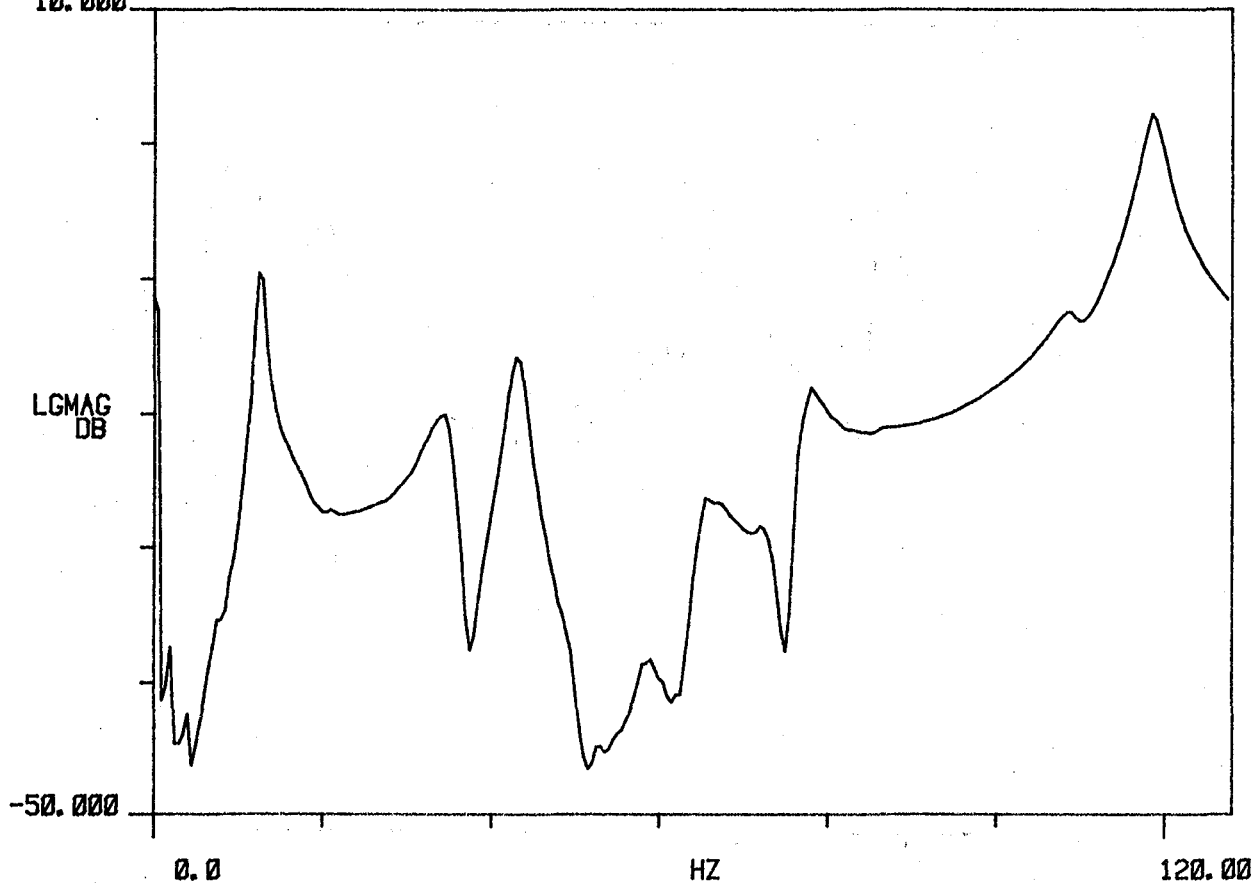
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.434	78.125	3.085	383.812	2.412
2	34.598	217.388	4.265	1.477	9.280
3	43.096	270.780	2.009	865.952	5.441
4	65.273	410.120	2.794	1.824	11.462
5	0.000	0.000	0.000	0.000	0.000
6	77.222	485.198	1.781	1.375	8.642
7	107.355	674.533	1.678	1.802	11.319
8	118.569	744.989	1.225	1.453	9.127

TRANS
10.000

R#: 12

#A: 325



FMS BLADE 75. ACC. POS. #2. 10/81

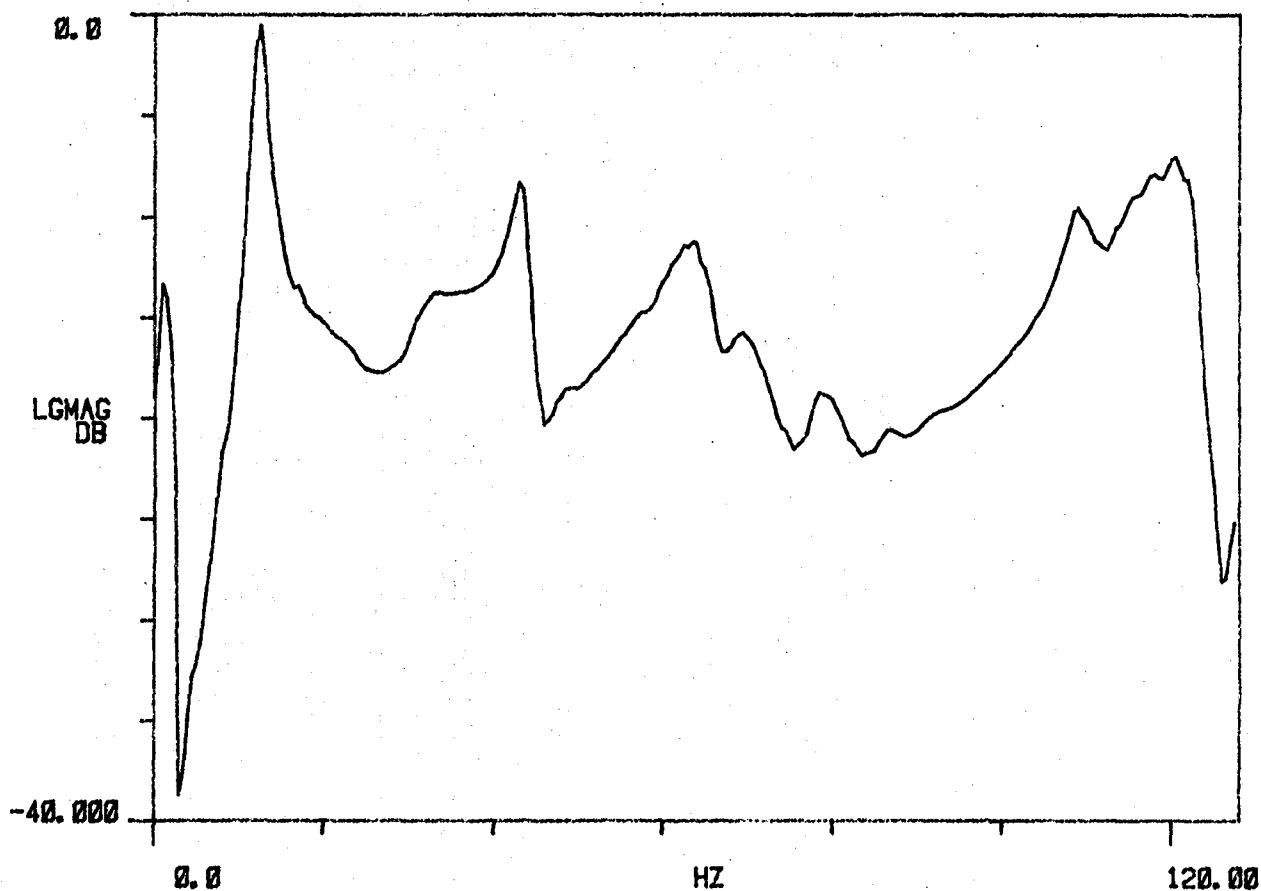
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.206	76.693	4.570	558.429	3.509
2	29.878	187.729	10.675	3.208	20.154
3	43.507	273.362	2.272	988.771	6.213
4	63.853	401.201	4.552	2.910	18.281
5	71.220	447.488	2.668	1.901	11.944
6	79.298	498.246	1.266	1.004	6.310
7	108.799	683.601	2.100	2.285	14.357
8	121.613	764.116	2.405	2.925	18.379

TRANS

R# 13

#A 325



FM3 BLADE 76. ACC. POS. #1. 01/82

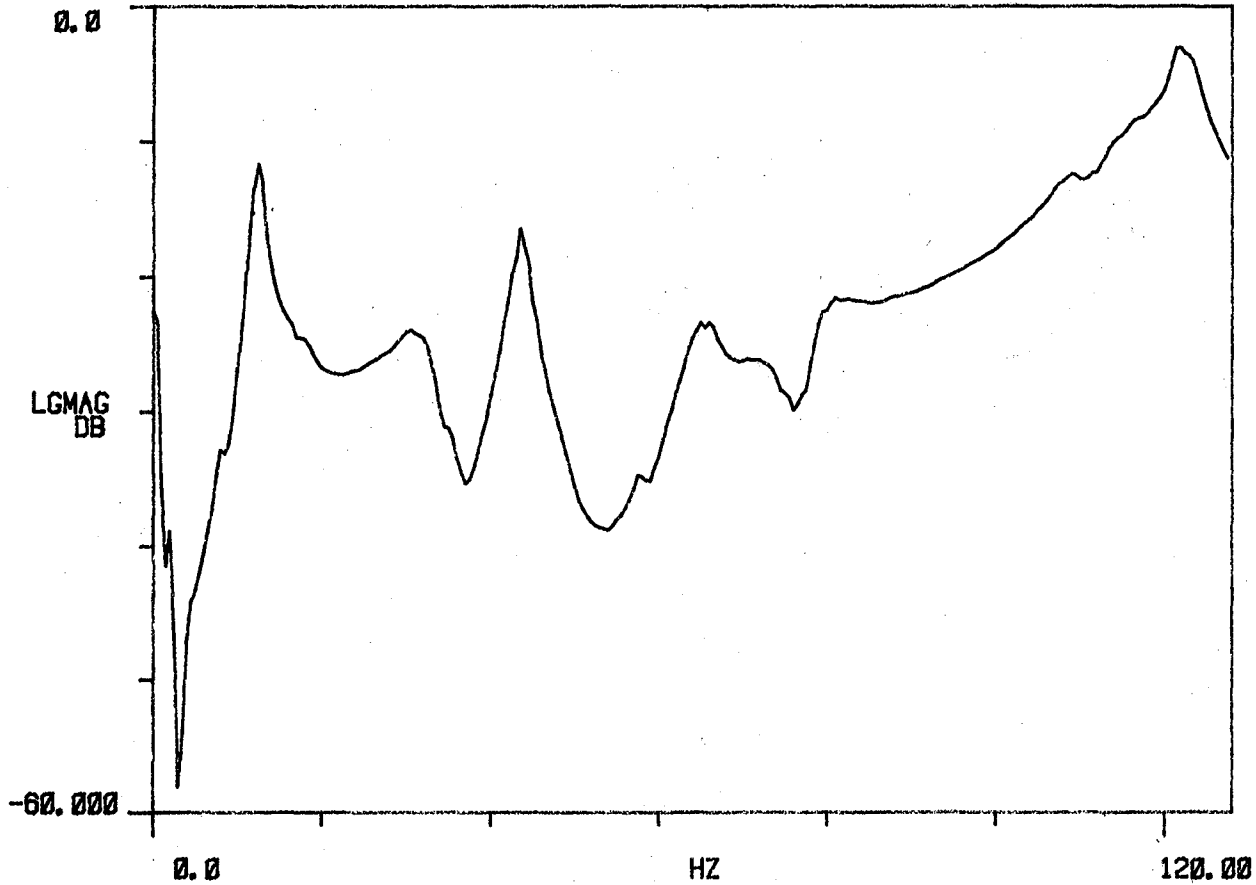
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.236	76.878	4.309	527.693	3.316
2	31.992	201.014	8.367	2.686	16.878
3	43.597	273.930	2.203	960.490	6.035
4	64.871	407.596	3.741	2.428	15.258
5	74.265	466.619	2.677	1.989	12.494
6	78.529	493.414	3.511	2.759	17.334
7	107.063	672.696	2.343	2.509	15.763
8	122.565	770.100	1.727	2.117	13.303

TRANS

R# 14

#A 325



FM3 BLADE 76. ACC. POS. #2. 01/82

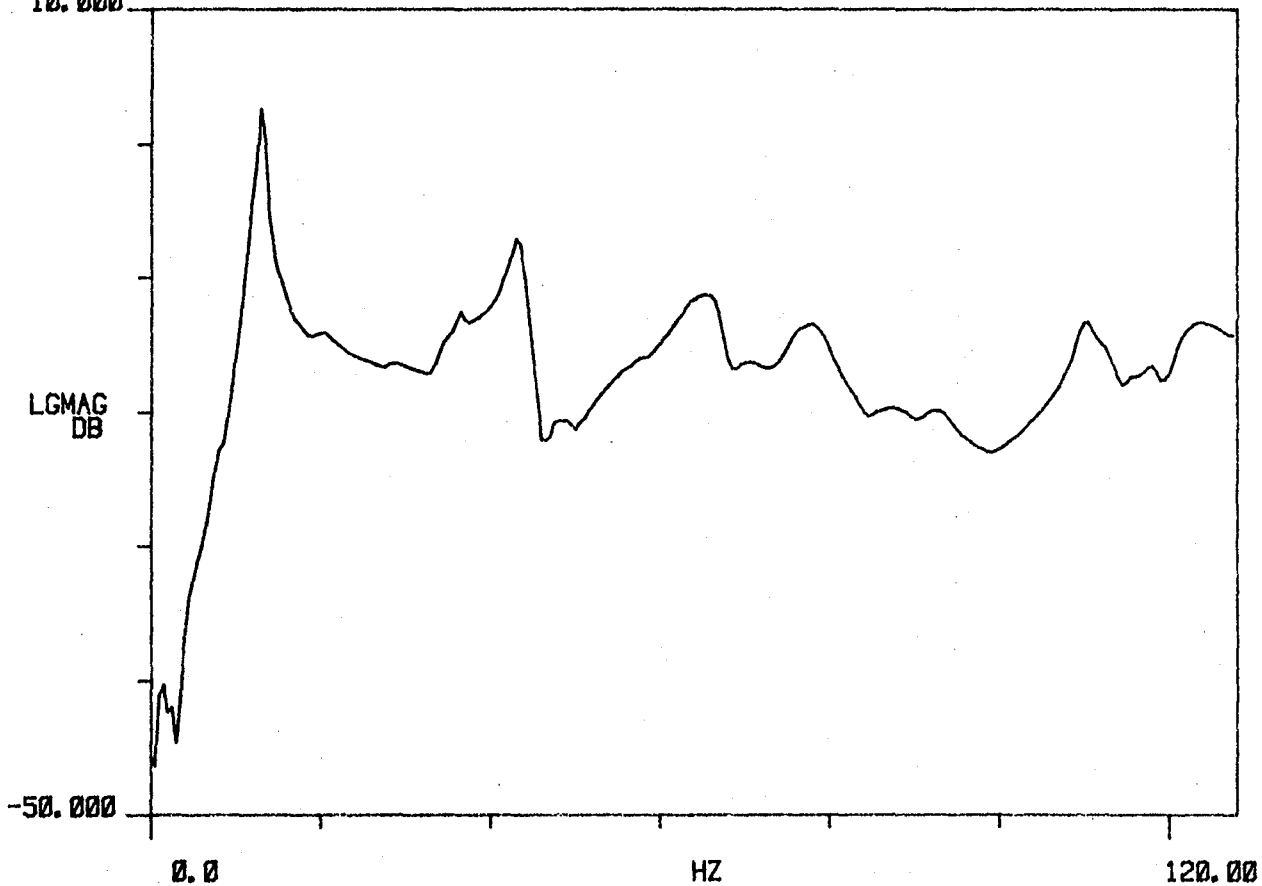
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.734	80.010	2.682	341.622 m	2.146
2	0.000	0.000	0.000	0.000	0.000
3	43.469	273.124	2.282	992.188 m	6.234
4	65.730	412.994	3.884	2.555	16.055
5	0.000	0.000	0.000	0.000	0.000
6	78.227	491.513	3.141	2.459	15.448
7	110.432	693.864	1.997	2.206	13.862

TRANS
10.000

R# 27

#A 325



FM2 BLADE 77. ACC. POS. #1. 01/82

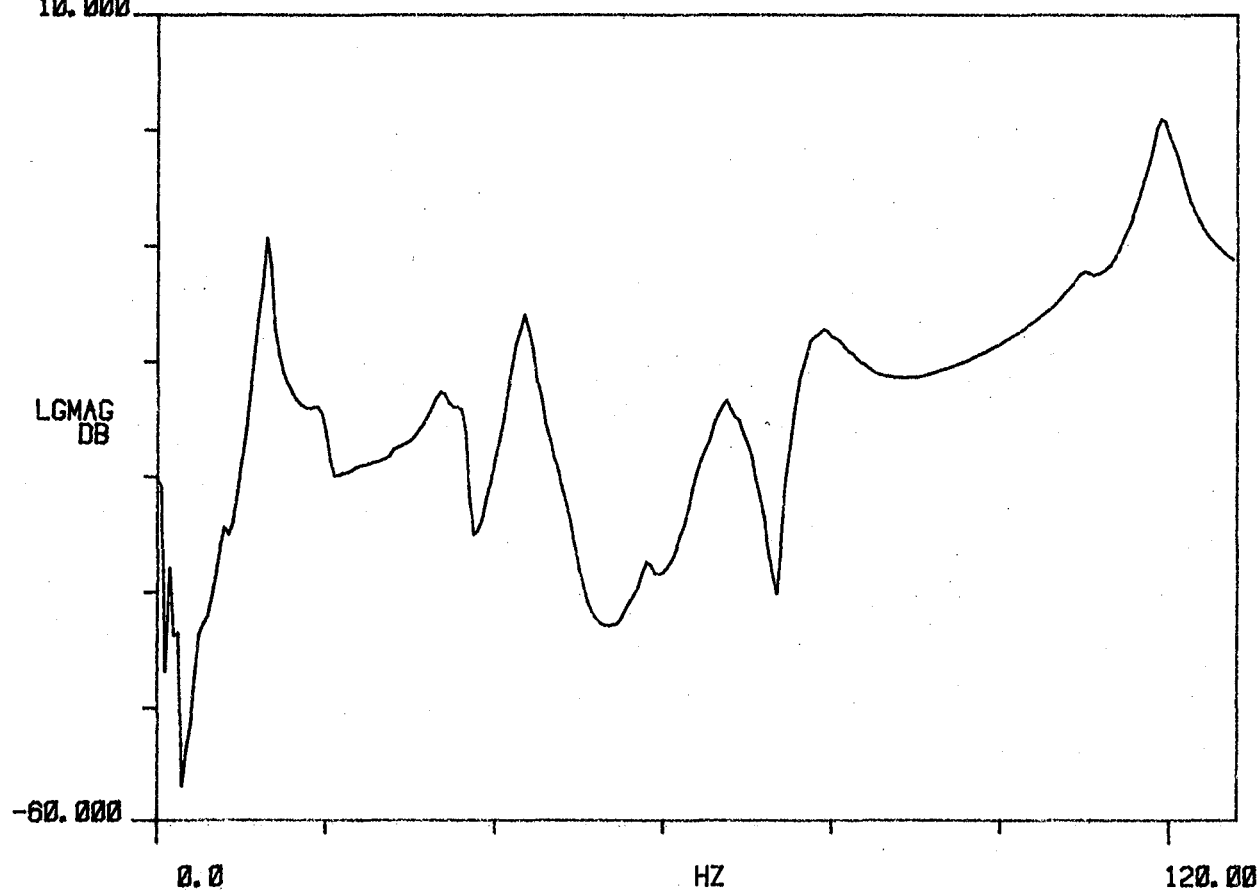
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.745	80.082	2.671	340.498	2.139
2	34.727	218.196	6.137	2.135	13.417
3	43.452	273.014	2.167	941.744	5.917
4	67.477	423.970	3.128	2.112	13.270
5	0.000	0.000	0.000	0.000	0.000
6	77.752	488.533	3.252	2.530	15.895
7	0.000	0.000	0.000	0.000	0.000
8	119.158	748.694	1.274	1.519	9.543

TRANS
10.000

R# 28

#A 325



FM2 BLADE 77. ACC. POS. #2. 01/82

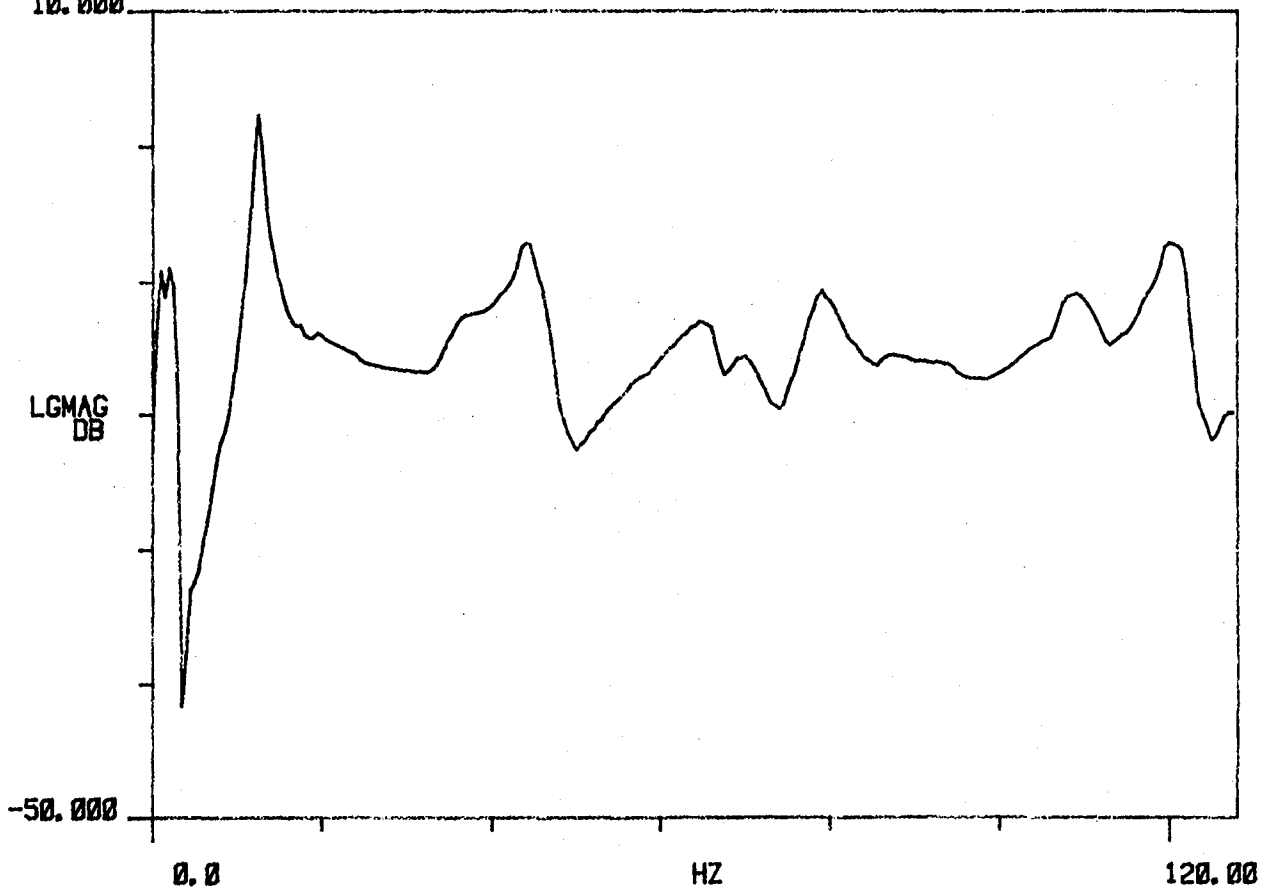
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.470	78.354	3.743	467.139	2.935
2	34.614	217.488	9.976	3.471	21.806
3	44.713	280.941	3.646	1.631	10.250
4	65.241	409.923	3.481	2.272	14.278
5	71.532	449.448	1.755	1.256	7.891
6	78.920	495.867	2.370	1.871	11.755
7	109.003	684.885	2.281	2.487	15.629
8	120.983	760.158	1.115	1.350	8.480

TRANS
10.000

R# 19

#A 325



FM3 BLADE 78. ACC. POS. #1. 01/82

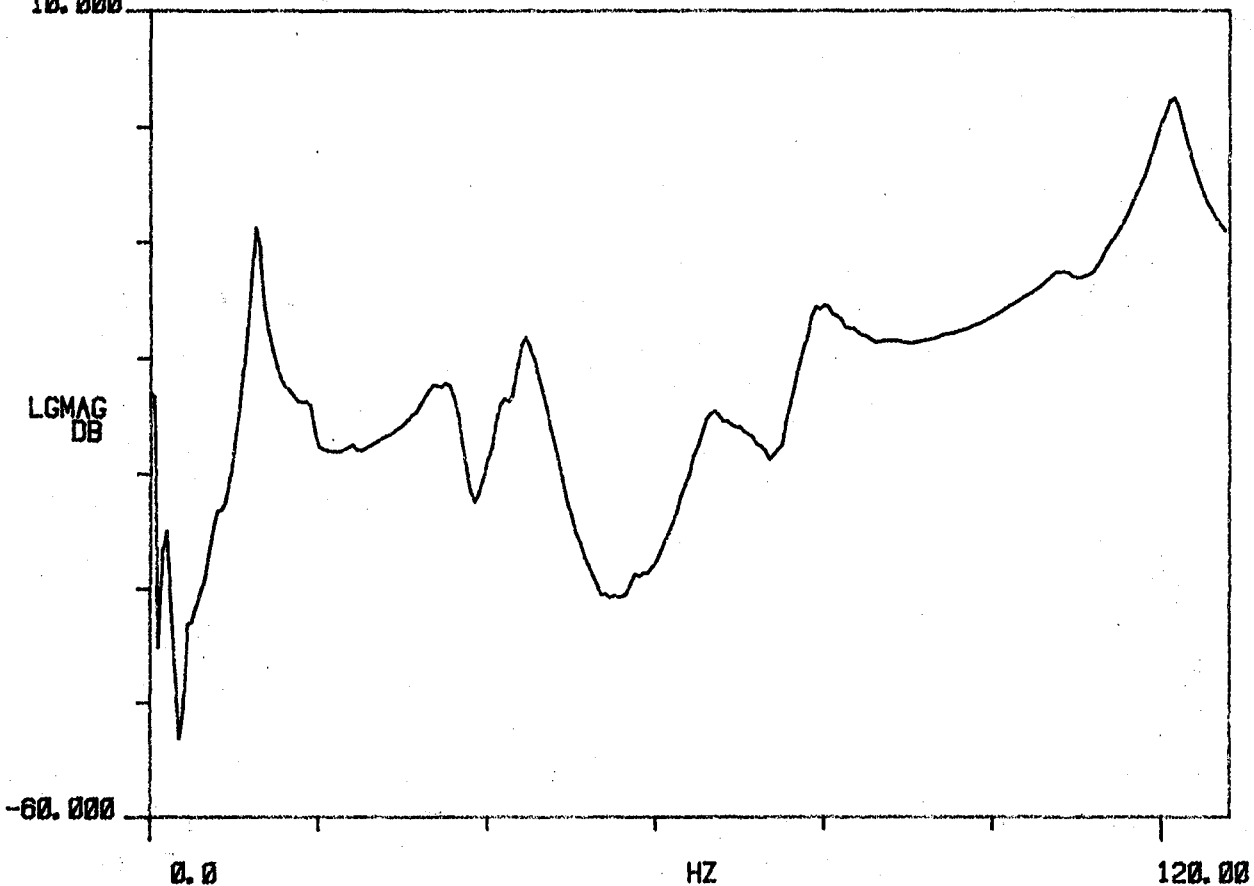
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.496	78.514	3.700	462.681	2.907
2	35.306	221.834	6.291	2.225	13.983
3	44.761	281.243	3.161	1.416	8.895
4	67.711	425.438	4.915	3.332	20.934
5	0.000	0.000	0.000	0.000	0.000
6	78.786	495.024	2.801	2.208	13.870
7	106.635	670.005	2.604	2.778	17.456
8	121.222	761.663	1.332	1.614	10.144

TRANS
10.000

R# 20

#A 325



FM3 BLADE 78. ACC. POS. #2. 01/82

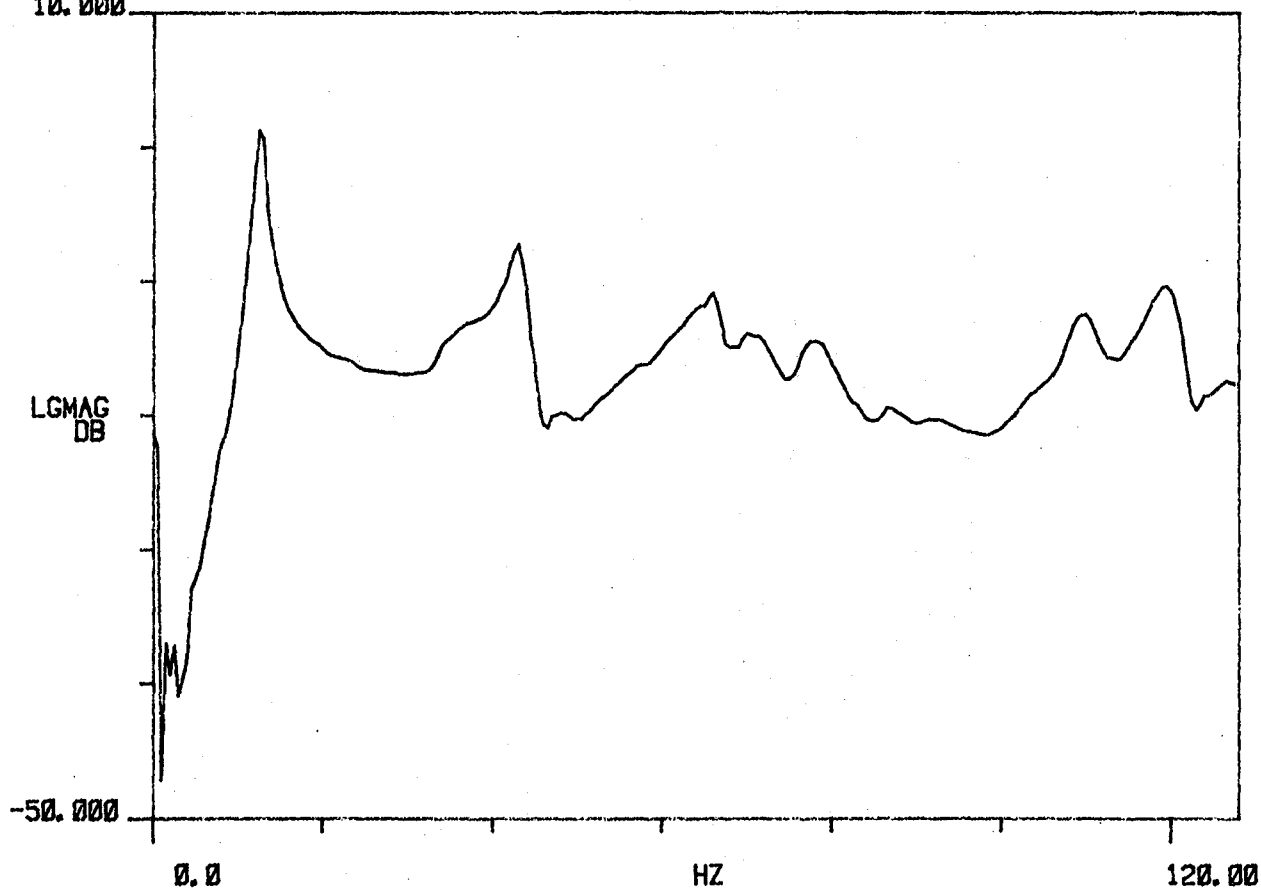
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.391	77.856	3.334	413.306	2.597
2	34.381	216.023	11.697	4.049	25.443
3	43.252	271.757	2.511	1.086	6.826
4	65.799	413.430	3.499	2.304	14.474
5	72.230	453.833	2.072	1.497	9.406
6	78.794	495.076	2.544	2.005	12.597
7	109.454	687.719	1.829	2.002	12.579
8	120.208	755.289	1.286	1.546	9.714

TRANS
10.000

R# 7

#A 325



FM3 BLADE 79. ACC. POS. #1. 01/82

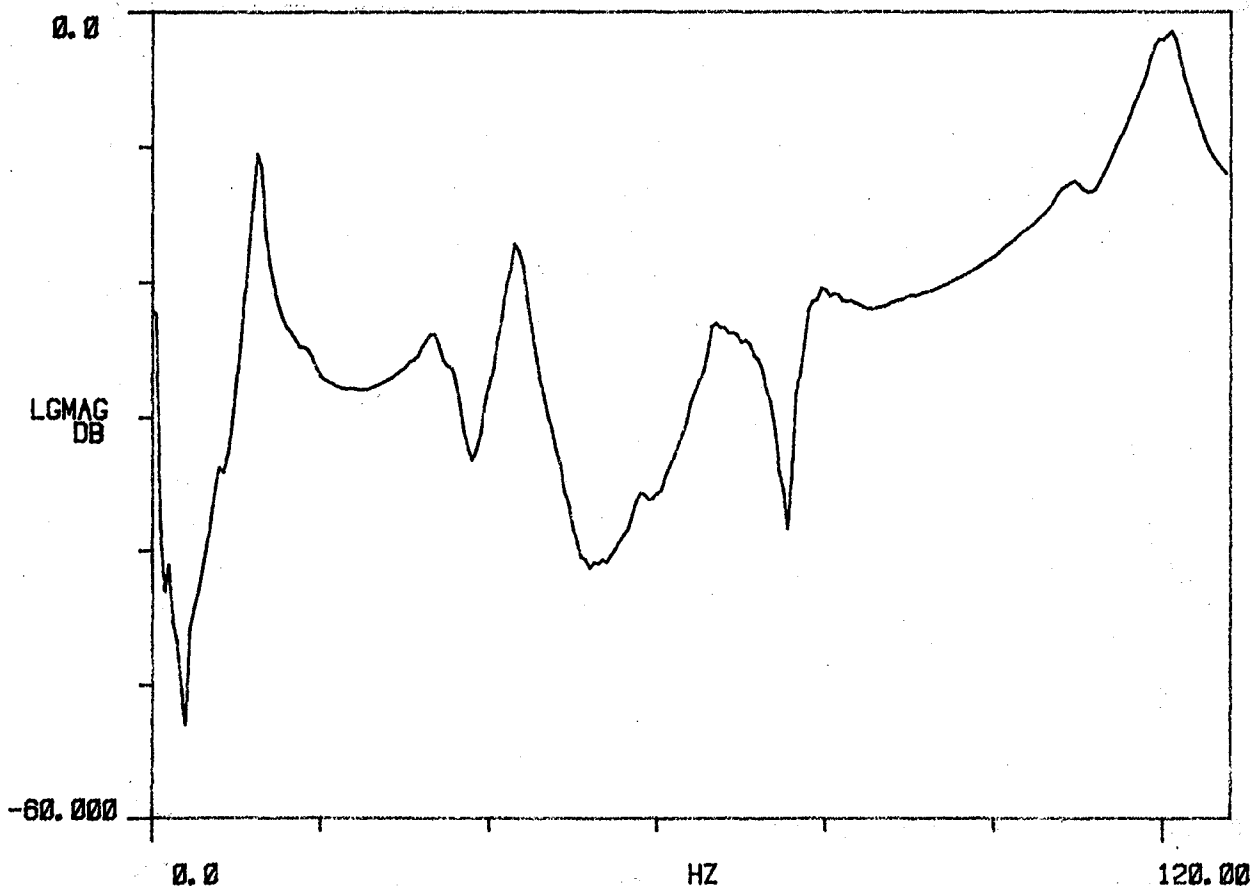
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.369	77.714	3.563	440.994 m	2.771
2	33.901	213.007	6.699	2.276	14.302
3	43.219	271.551	2.437	1.054	6.620
4	68.158	428.250	4.199	2.864	17.996
5	0.000	0.000	0.000	0.000	0.000
6	77.685	488.112	2.784	2.164	13.596
7	109.174	685.959	-875.980 m	-956.376 m	-6.009
8	120.338	756.108	1.775	2.136	13.420

TRANS

R# 8

#A 325



FM3 BLADE 79. ACC. POS. #2. 01/82

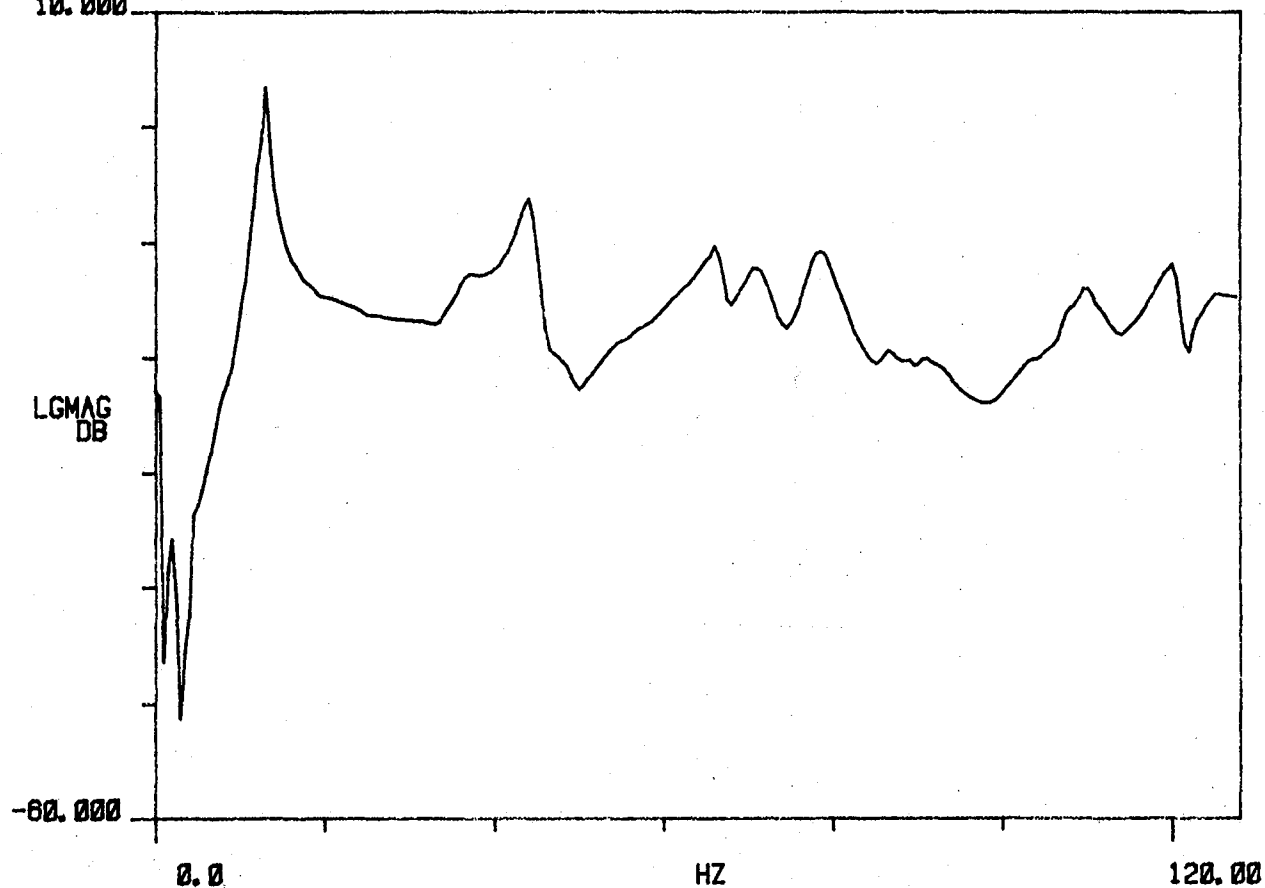
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.727	79.967	2.533	322.483 m	2.026
2	35.171	220.985	6.084	2.144	13.469
3	44.203	277.737	2.215	979.532 m	6.155
4	66.295	416.545	2.421	1.606	10.089
5	71.399	448.613	1.564	1.117	7.019
6	78.722	494.622	2.200	1.732	10.882
7	109.597	688.620	1.903	2.086	13.107
8	120.283	755.761	997.056 m	1.199	7.536

TRANS
10.000

R# 5

#A 325



FM3 BLADE 80. ACC. POS. #1. 01/82

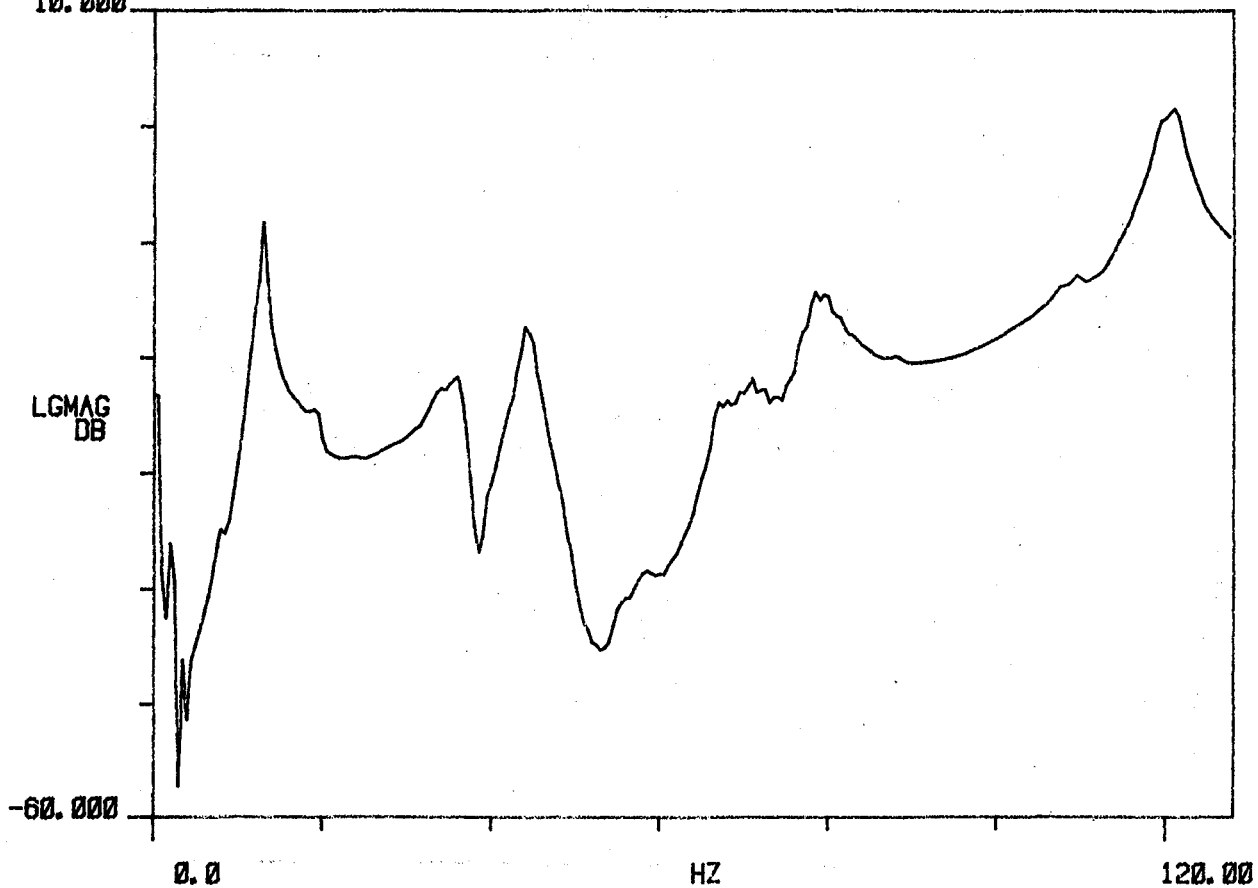
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.763	80.194	2.504	319.756 m	2.009
2	36.076	226.670	4.456	1.609	10.111
3	44.304	278.368	2.214	980.950 m	6.163
4	71.357	448.351	3.632	2.593	16.294
5	0.000	0.000	0.000	0.000	0.000
6	78.382	492.487	2.493	1.954	12.280
7	106.826	671.210	-89.384 m	-95.486 m	-599.957 m
8	120.442	756.758	1.374	1.655	10.396

TRANS
10.000

R# 6

#A 325



FM3 BLADE 80. ACC. POS. #2. 01/82

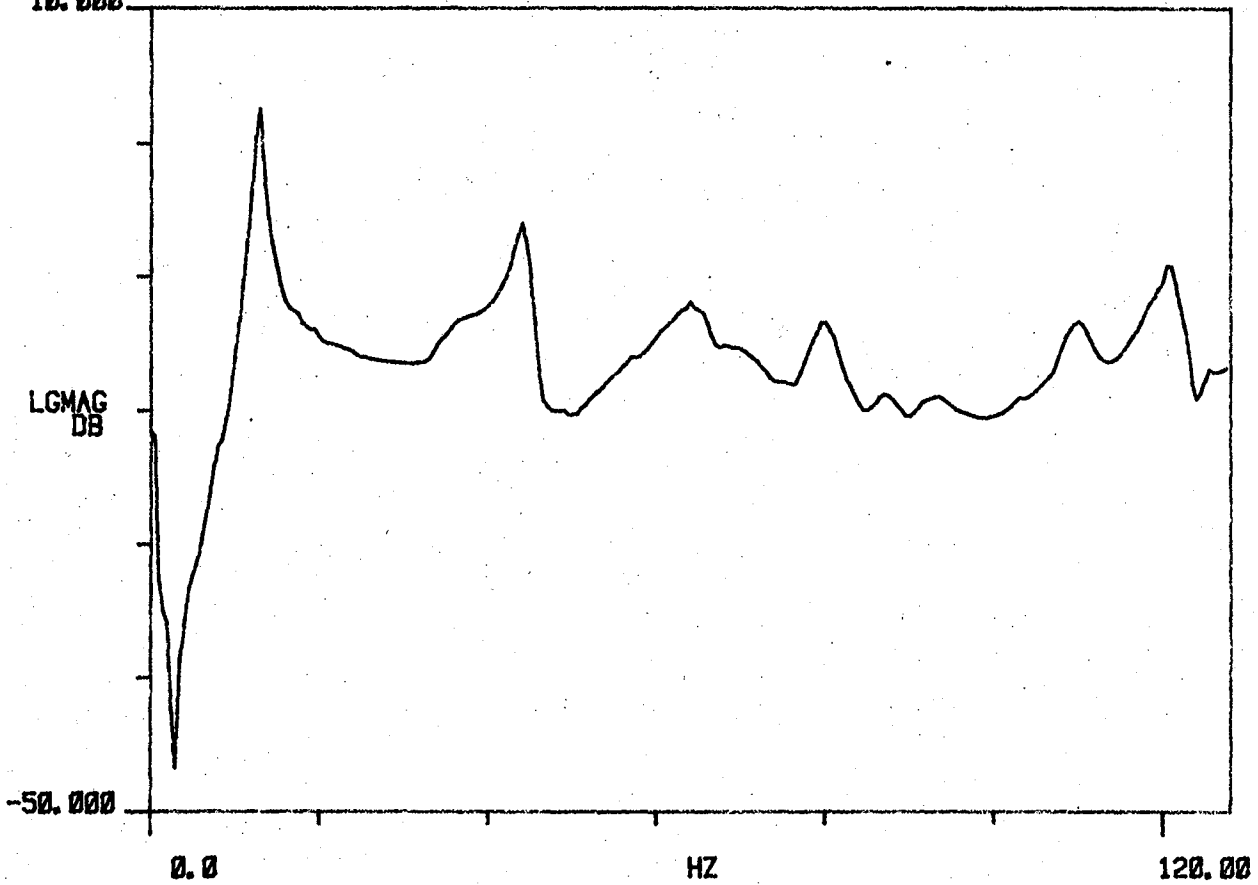
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.719	79.918	3.591	456.984	2.871
2	32.333	203.152	12.284	3.996	25.105
3	44.293	278.301	2.065	914.709	5.747
4	64.634	406.106	4.803	3.108	19.528
5	70.861	445.231	-1.617	-1.146	-7.200
6	80.192	503.863	1.950	1.584	9.829
7	109.896	690.495	1.753	1.927	12.106
8	121.543	763.680	1.091	1.326	8.329

TRANS
10.000

R# 15

#A 325



FM3 BLADE 81. ACC. POS. #1. 01/82

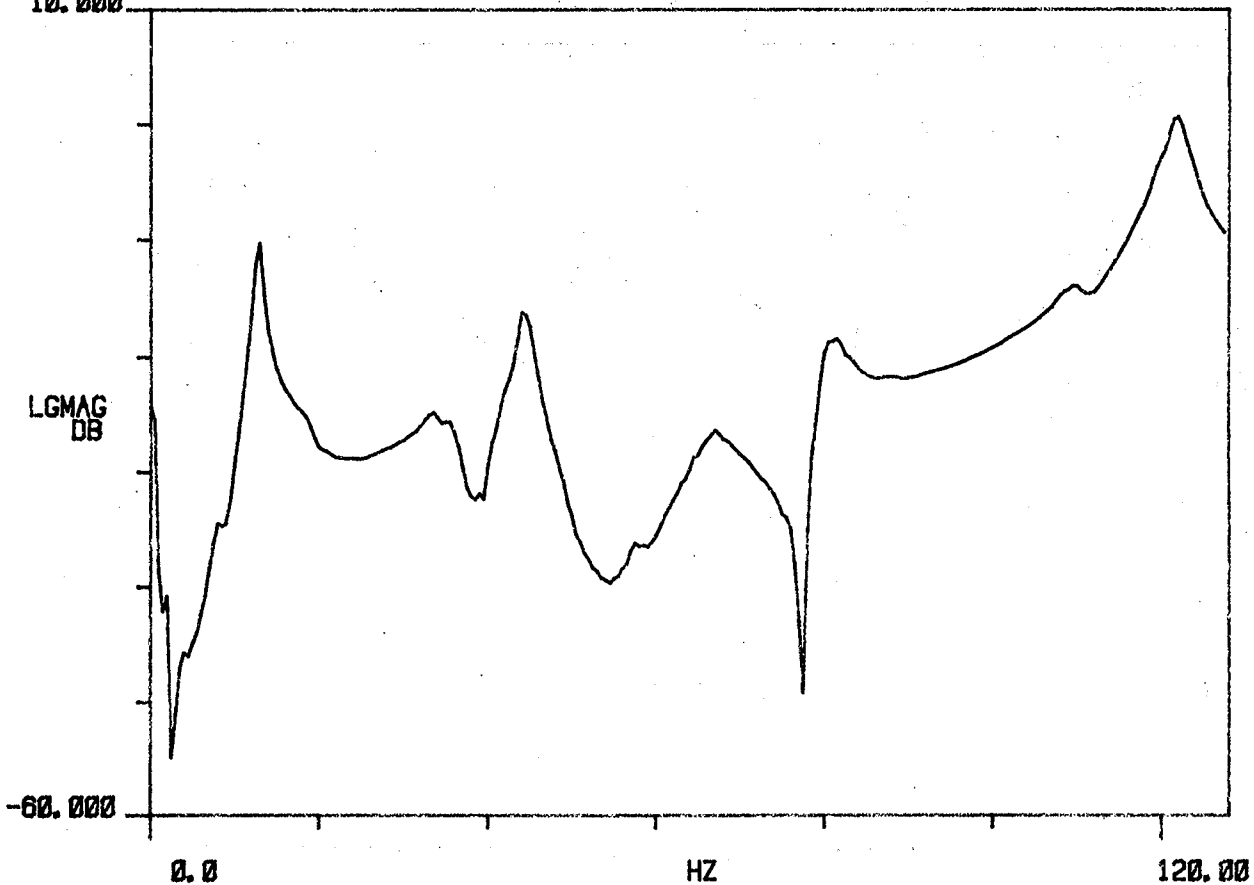
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.701	79.803	3.948	501.805 m	3.153
2	34.935	219.501	7.359	2.578	16.197
3	44.336	278.573	2.304	1.022	6.421
4	66.539	418.080	4.776	3.182	19.991
5	0.000	0.000	0.000	0.000	0.000
6	80.160	503.660	1.883	1.510	9.488
7	108.151	679.532	574.211 m	621.025 m	3.902
8	121.737	764.896	1.374	1.673	10.511

TRANS
10.000

R#: 16

#A: 325



FM3 BLADE 81. ACC. POS. #2. 01/82

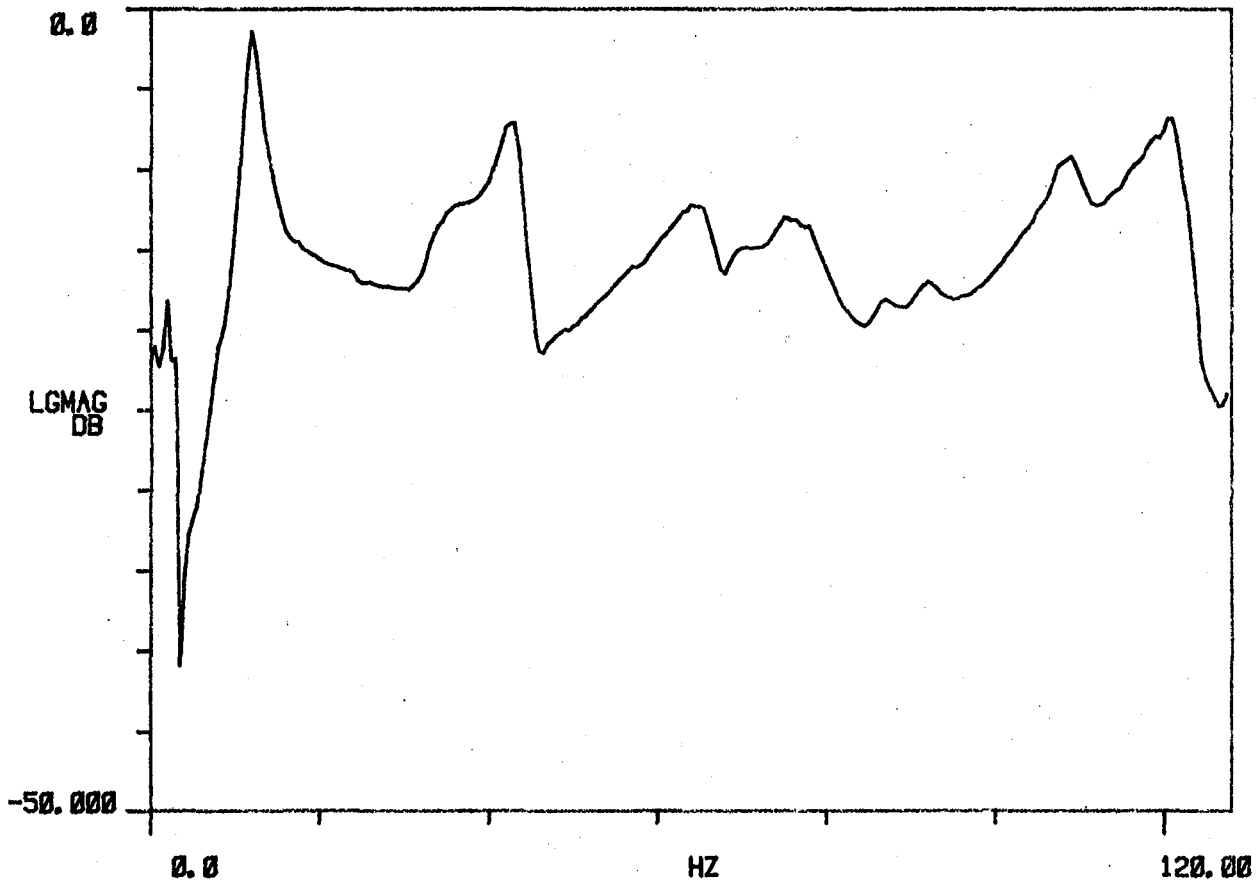
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.888	74.693	5.310	632.166 m	3.972
2	32.364	203.351	12.678	4.136	25.990
3	43.022	270.315	2.874	1.237	7.773
4	64.849	407.460	4.213	2.734	17.180
5	69.026	433.705	-133.808 m	-92.363 m	-580.334 m
6	77.007	483.846	4.019	3.097	19.462
7	108.663	682.751	2.215	2.407	15.125
8	121.144	761.172	1.879	2.276	14.304

TRANS

R# 17

#A 325



FM3 BLADE 82. ACC. POS. #1. 01/82

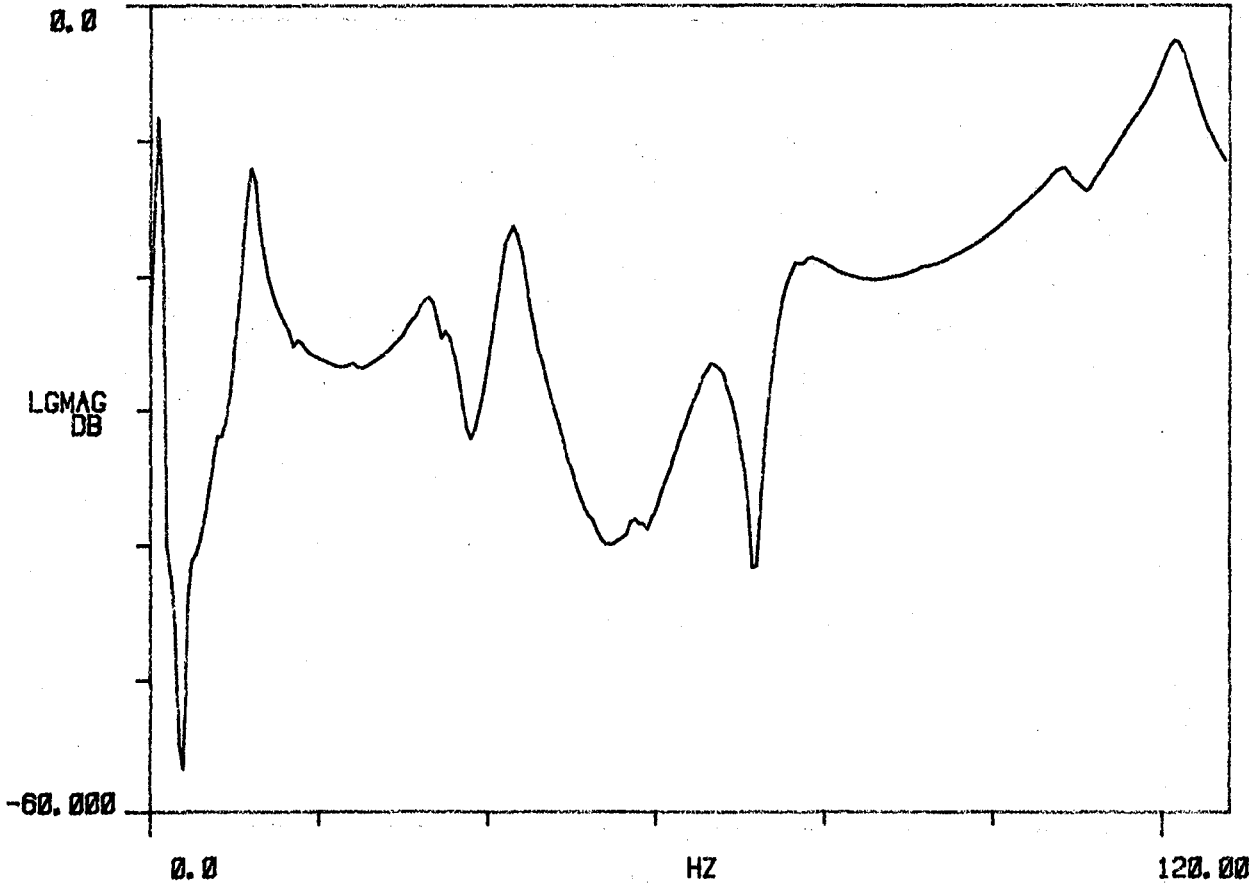
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.943	75.040	5.436	650.193	4.085
2	33.357	209.589	7.088	2.370	14.892
3	42.945	269.834	2.684	1.153	7.246
4	67.099	421.597	3.256	2.186	13.734
5	0.000	0.000	0.000	0.000	0.000
6	75.860	476.642	4.234	3.215	20.200
7	107.810	677.392	1.733	1.869	11.742
8	121.696	764.640	1.969	2.397	15.062

TRANS

R# 18

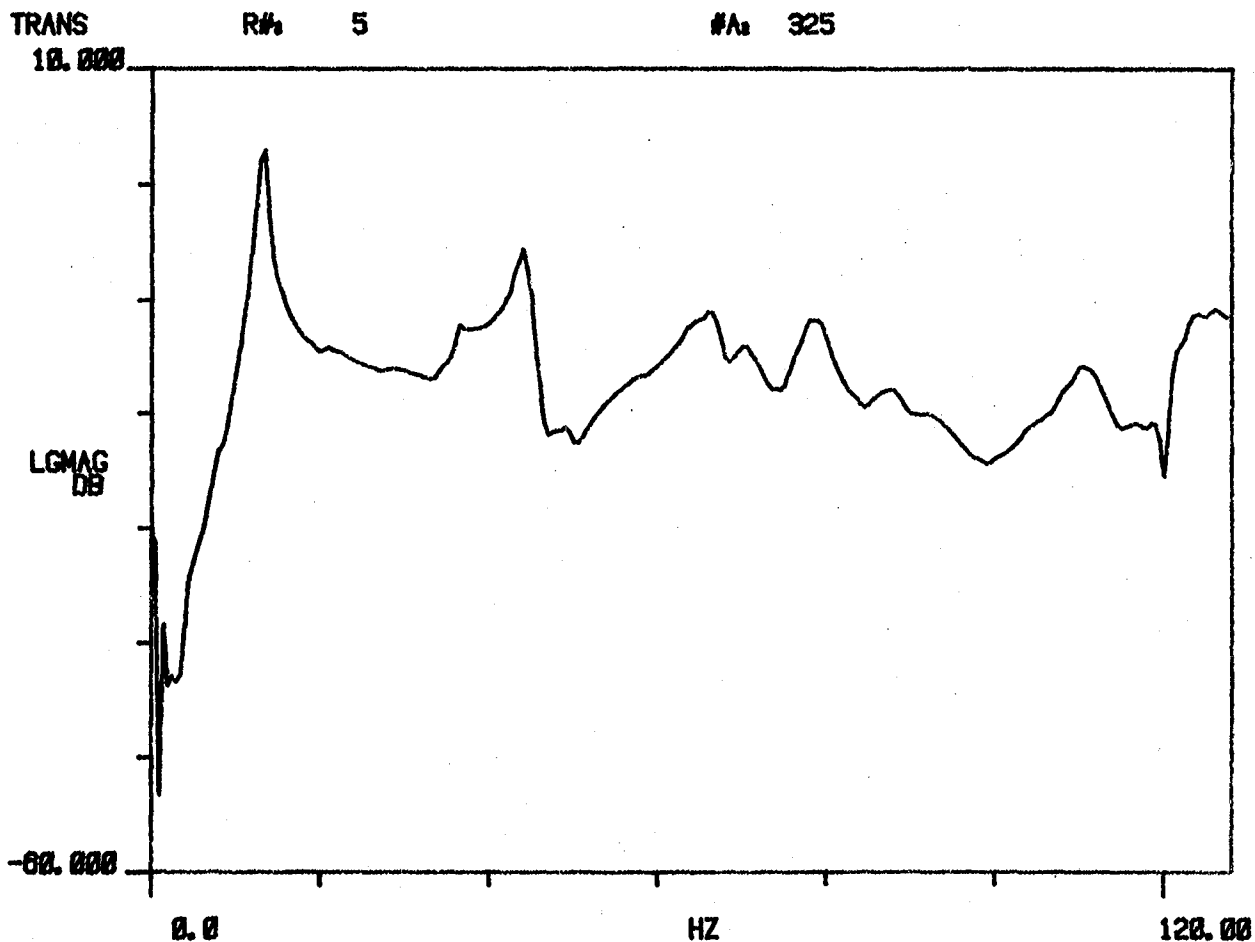
#A 325



FM3 BLADE 82. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.958	81.485	2.113	273.818	1.720
2	0.000	0.000	0.000	0.000	0.000
3	44.284	278.242	2.047	908.553	5.696
4	66.297	418.559	3.214	2.132	13.395
5	71.522	449.389	1.712	1.224	7.693
6	78.752	494.818	2.048	1.812	10.128
7	111.007	697.481	2.048	2.274	14.290



FM2 BLADE 83. ACC. POS. #1. 01/82

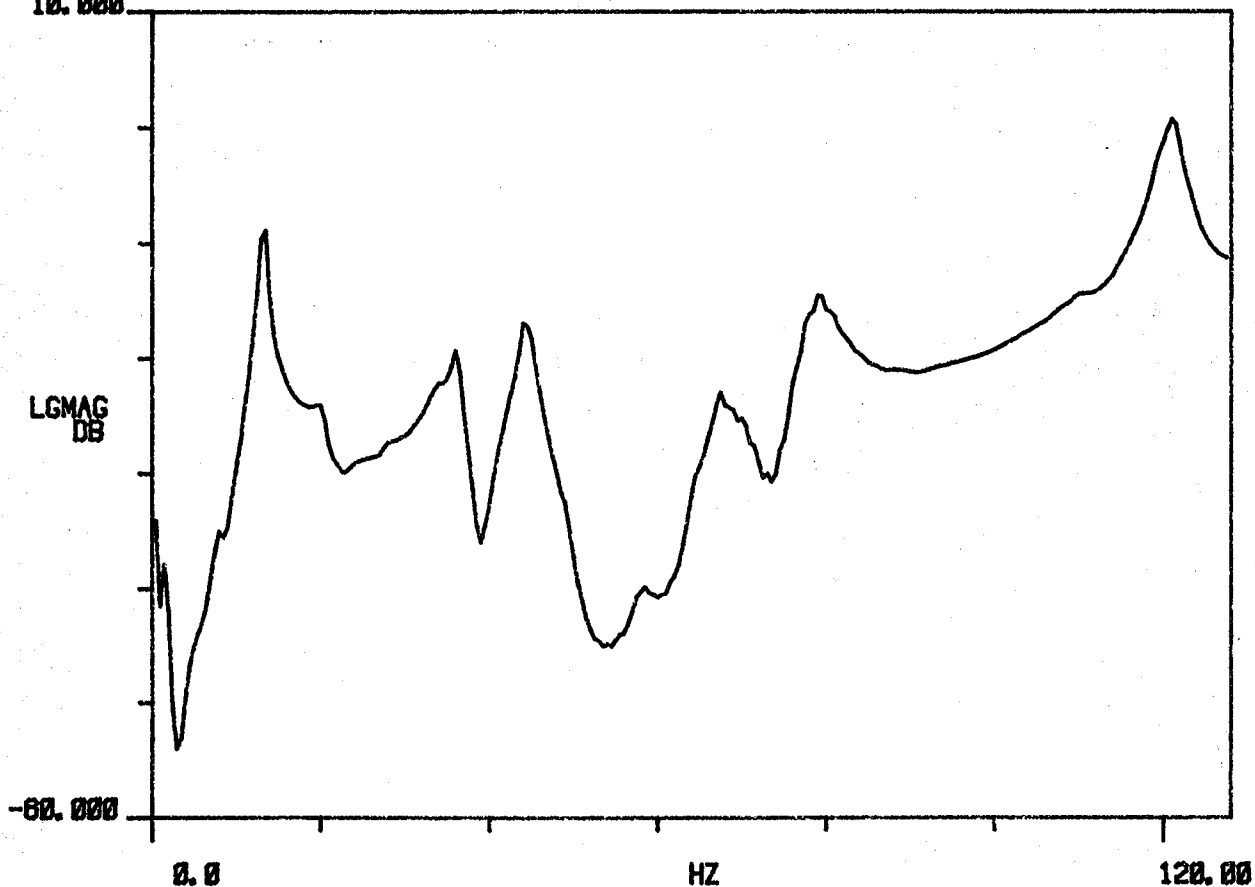
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.973	81.514	2.162	280.600	1.763
2	36.279	227.947	2.985	1.083	6.808
3	44.350	278.658	2.085	924.904	5.811
4	67.813	426.083	3.159	2.143	13.465
5	0.000	0.000	0.000	0.000	0.000
6	78.564	493.635	2.361	1.855	11.658
7	0.000	0.000	0.000	0.000	0.000
8	120.805	759.039	1.124	1.357	8.528

TRANS
10.000

R# 6

#A 325



FM2 BLADE 83. ACC. POS. #2. 01/82

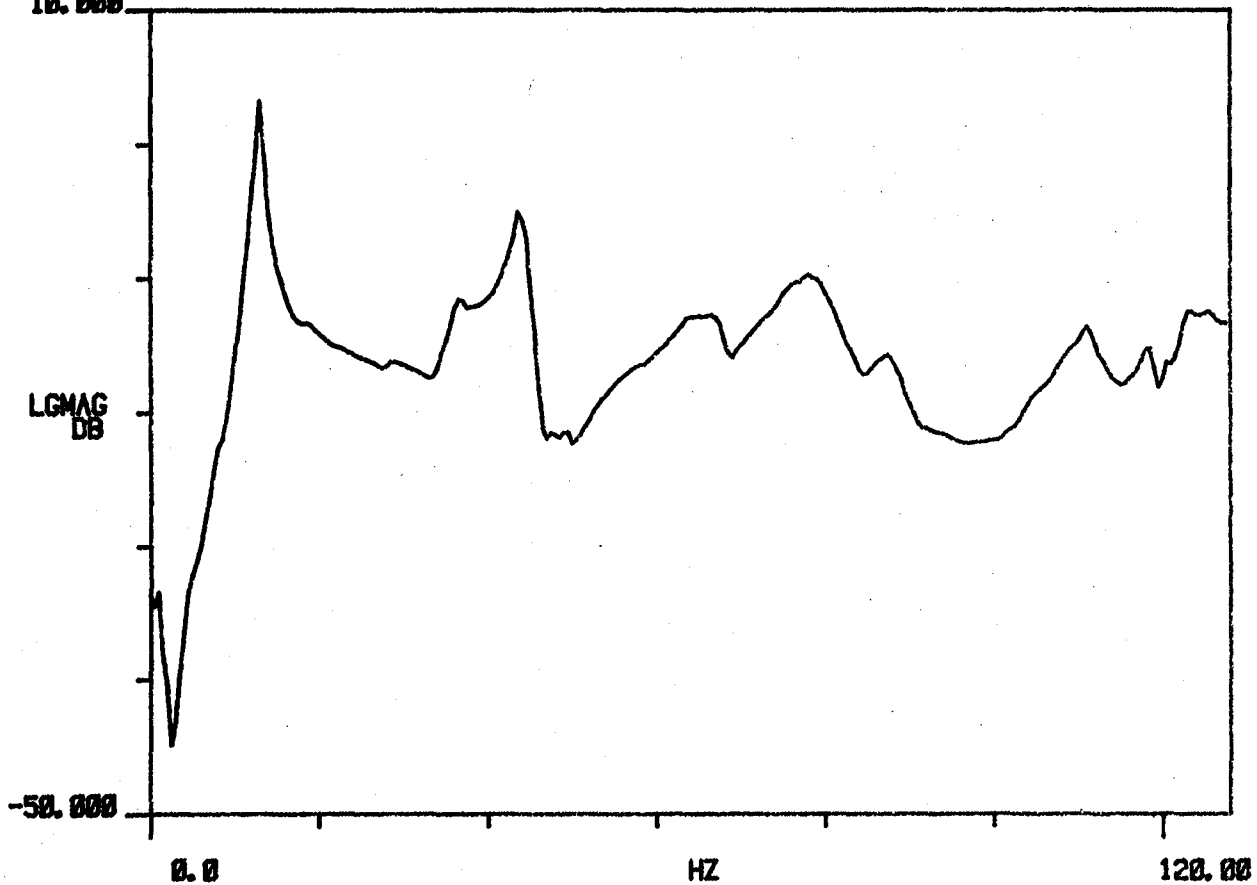
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.752	80.125	2.921	372.810	2.341
2	35.334	222.010	4.177	1.477	9.281
3	44.047	276.758	2.136	941.254	5.914
4	65.812	413.587	4.530	2.984	18.758
5	0.000	0.000	0.000	0.000	0.000
6	78.643	494.127	4.474	3.522	22.130
7	111.017	697.539	2.188	2.429	15.263

TRANS
10.000

R# 3

#A 325



FM2 BLADE 84. ACC. POS. #1. 01/82

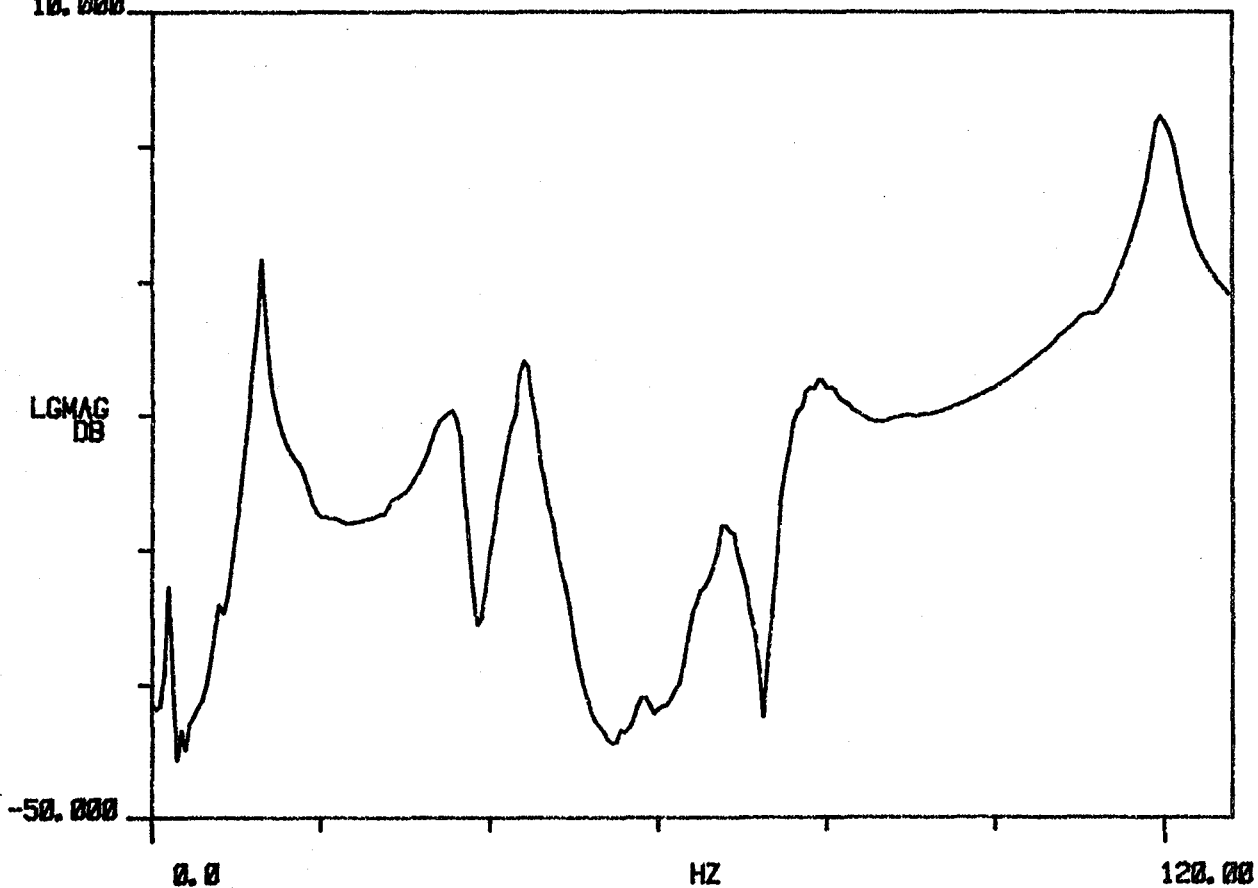
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.760	80.171	2.760	352.283	2.213
2	35.819	223.800	4.389	1.588	8.854
3	44.122	277.225	2.195	968.747	6.887
4	68.479	430.264	2.545	1.743	10.954
5	0.000	0.000	0.000	0.000	0.000
6	77.348	485.994	3.861	2.988	18.776
7	0.000	0.000	0.000	0.000	0.000
8	118.818	752.839	1.114	1.335	8.386

TRANS
10.000

R# 4

#A 325



FM2 BLADE 84. ACC. POS. #1. 01/82

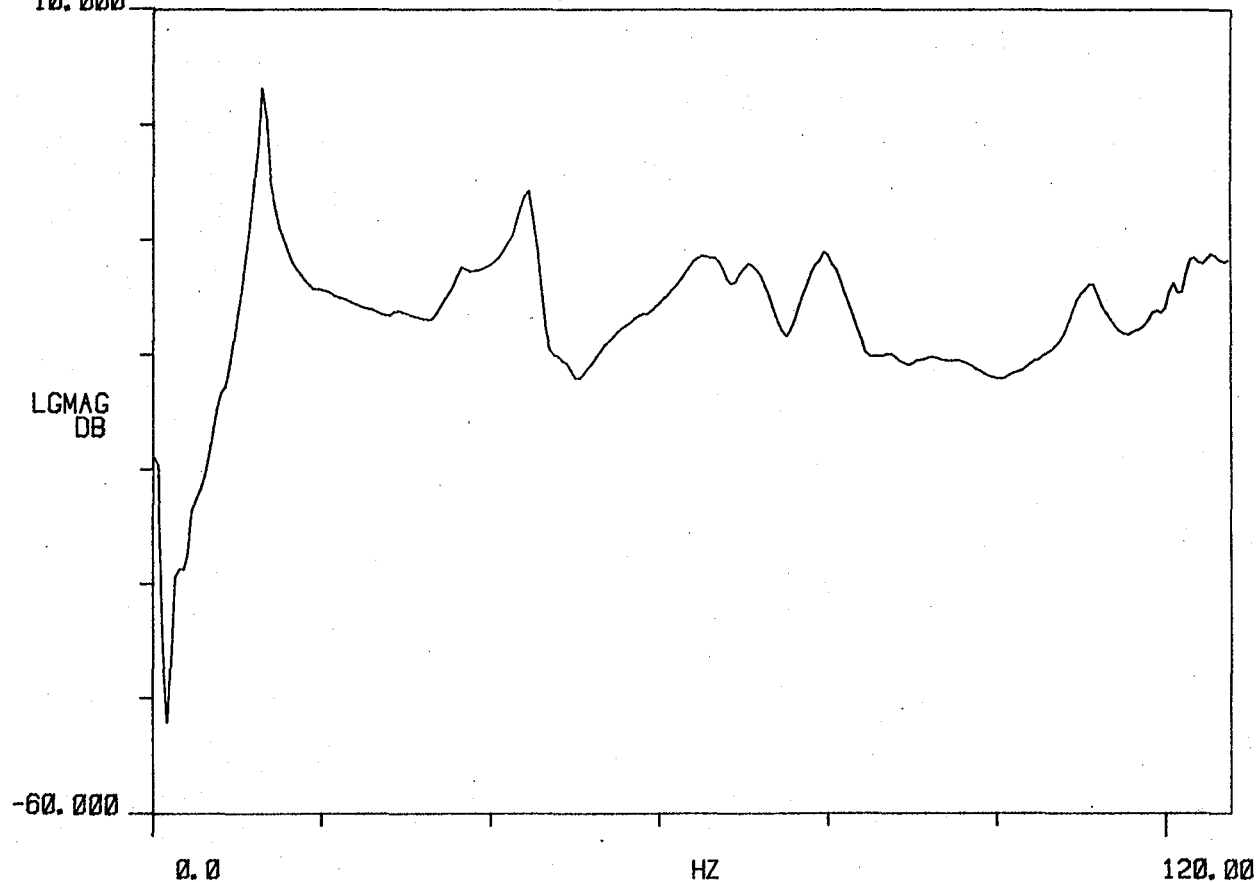
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.833	80.633	2.684	344.533	2.165
2	35.556	223.403	6.159	2.194	13.786
3	44.559	279.972	2.104	937.943	5.893
4	65.450	411.237	4.019	2.632	16.540
5	71.707	450.548	2.186	1.568	9.853
6	79.830	501.585	2.409	1.924	12.089
7	110.814	696.264	1.751	1.940	12.191
8	122.368	768.860	1.090	1.333	8.378

TRANS
10.000

R#: 9

#A: 325



FM2 BLADE 85. ACC. POS. #1. 01/82

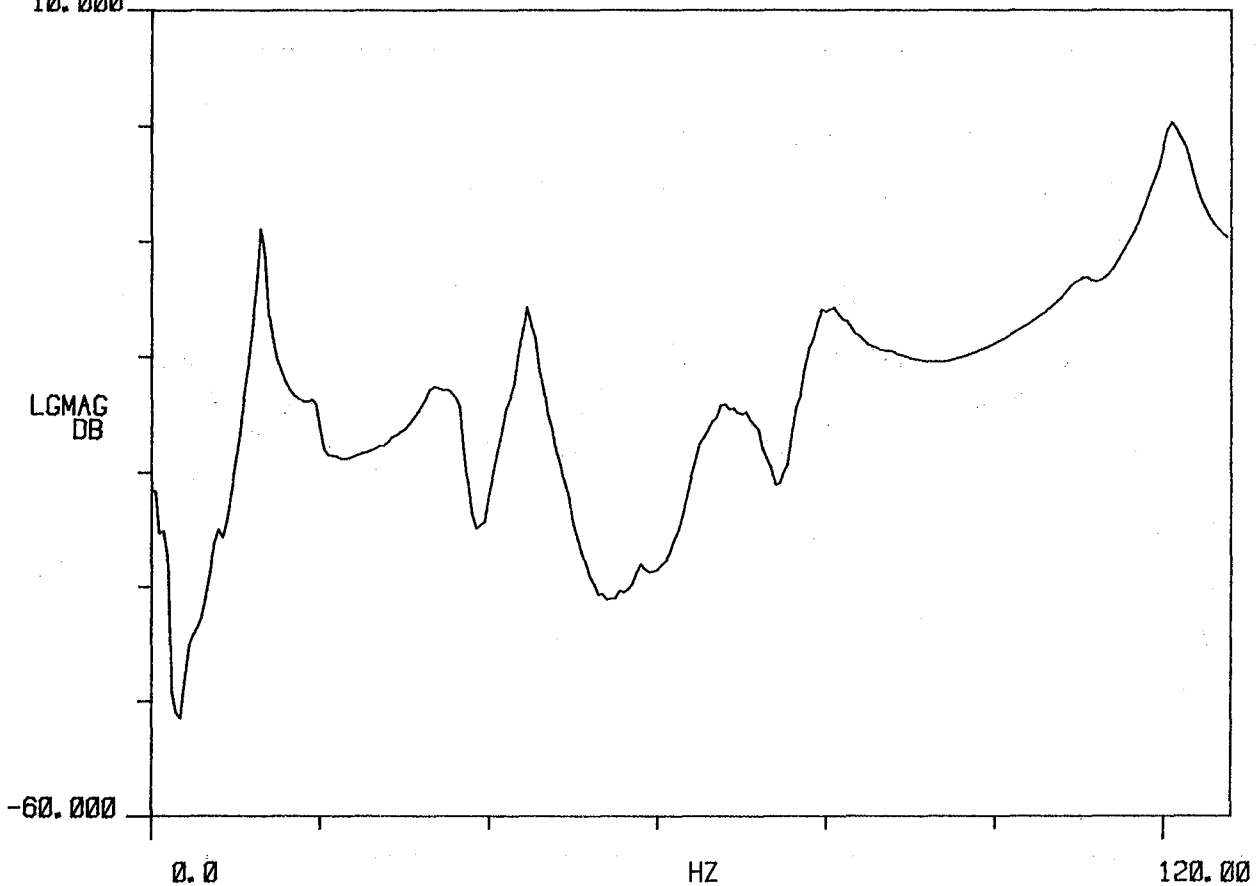
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.831	80.619	2.753	353.430	2.221
2	35.321	221.931	6.498	2.300	14.452
3	44.588	280.153	2.103	937.797	5.892
4	0.000	0.000	0.000	0.000	0.000
5	69.287	435.344	4.608	3.196	20.083
6	79.261	498.011	2.812	2.230	14.011
7	108.564	682.128	1.075	1.167	7.333
8	121.188	761.448	1.373	1.663	10.452

TRANS
10.000

R#: 10

#A: 325



FM2 BLADE 85. ACC. POS. #2. 01/82

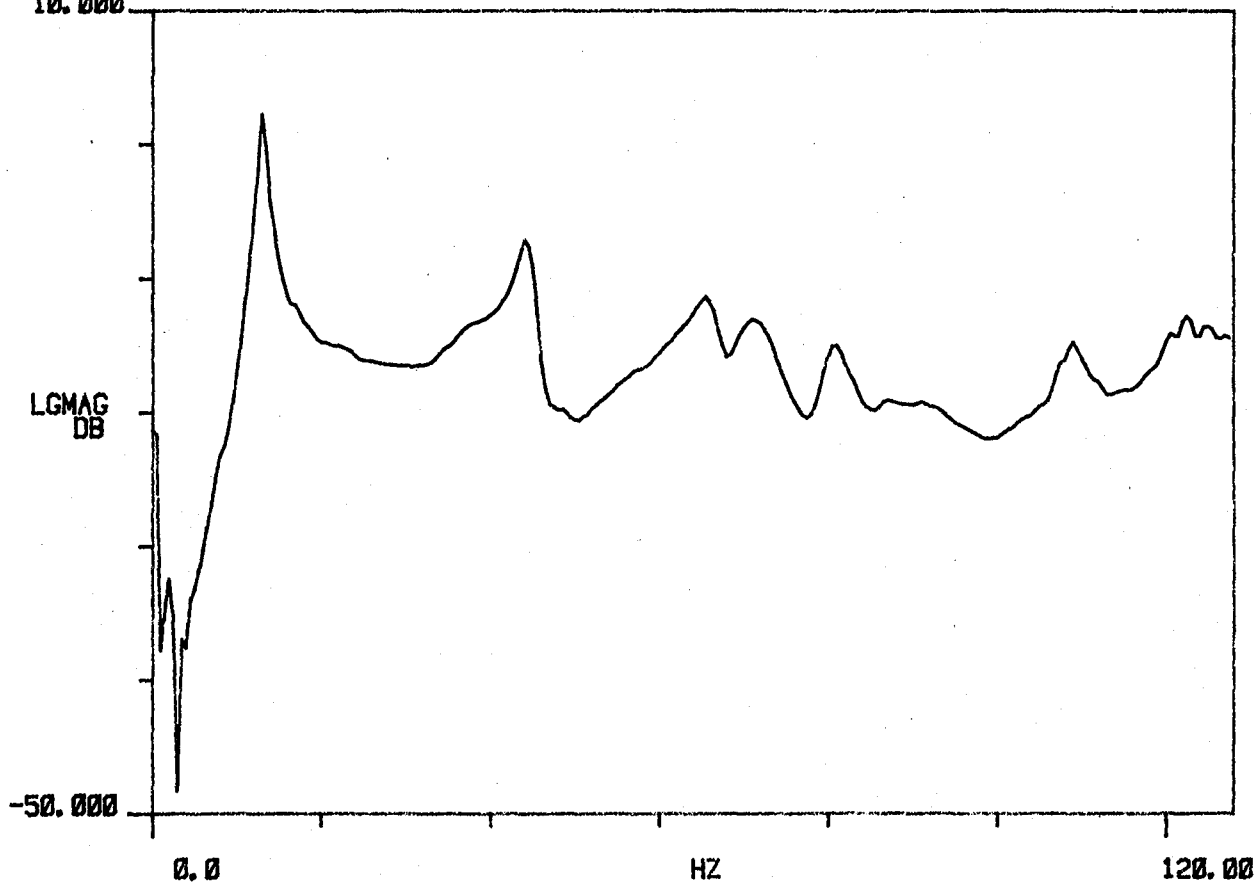
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.877	80.907	3.590	462.520 m	2.906
2	36.403	228.727	4.466	1.628	10.226
3	44.554	279.942	2.247	1.001	6.291
4	65.917	414.171	2.693	1.776	11.158
5	71.722	450.643	2.206	1.583	9.945
6	80.849	507.891	1.504	1.216	7.640
7	108.794	683.576	1.762	1.917	12.045
8	122.781	771.456	914.498 m	1.123	7.055

TRANS
10.000

R# 11

#A 325



FM3 BLADE 86. ACC. POS. #1. 01/82

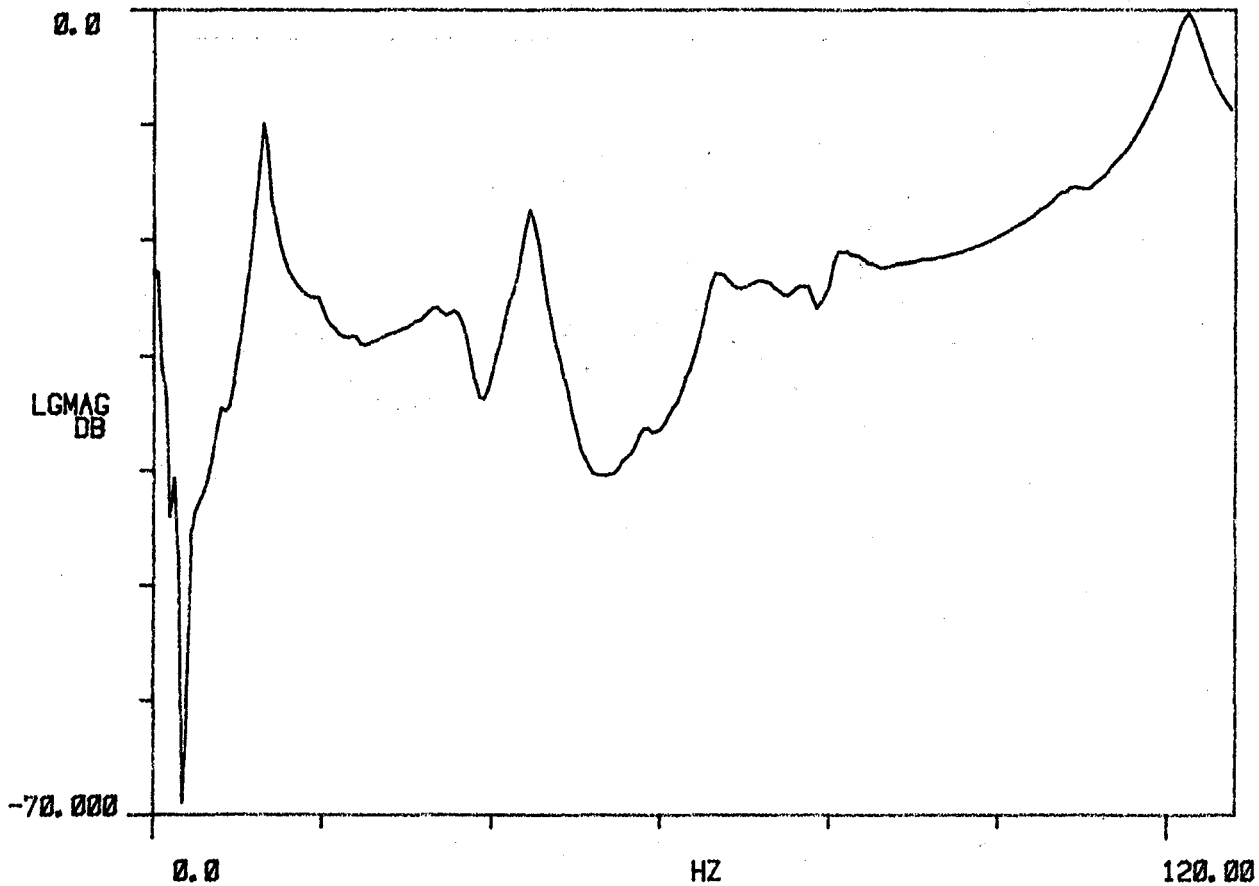
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.879	80.924	3.616	466.002 m	2.928
2	35.976	226.046	8.147	2.941	18.478
3	44.588	280.154	2.223	991.403 m	6.229
4	66.071	415.139	2.900	1.917	12.043
5	0.000	0.000	0.000	0.000	0.000
6	80.263	504.308	2.033	1.632	10.255
7	106.608	669.836	237.239 m	252.916 m	1.589
8	122.311	768.505	1.466	1.793	11.267

TRANS

R# 12

#A 325



FM3 BLADE 86. ACC. POS. #2. 01/82

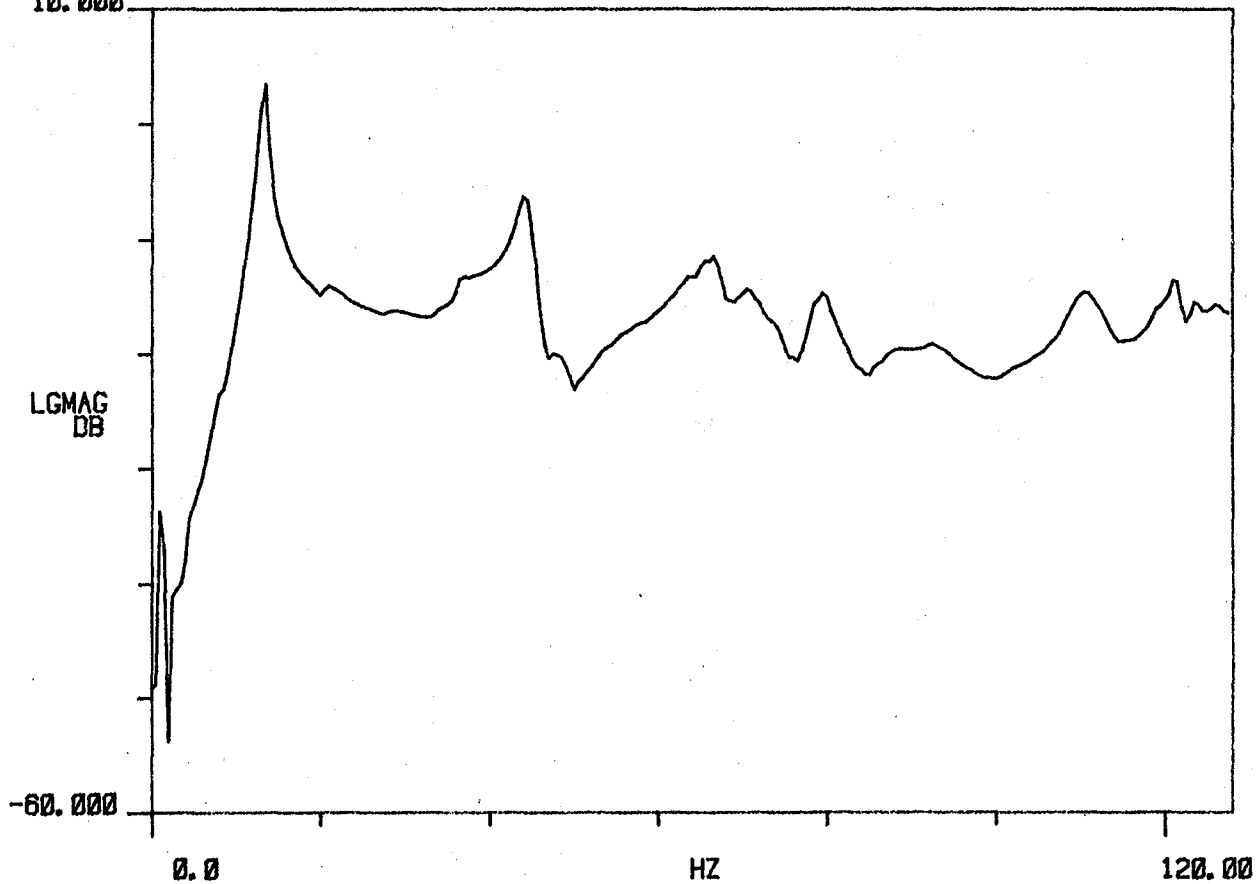
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	13.104	82.334	2.482	325.293 m	2.044
2	0.000	0.000	0.000	0.000	0.000
3	44.404	278.999	2.032	902.261 m	5.669
4	66.677	418.945	3.118	2.080	13.068
5	71.710	450.569	2.358	1.692	10.629
6	79.471	499.329	1.618	1.286	8.079
7	110.678	695.408	2.097	2.321	14.584
8	121.701	764.667	899.511 m	1.095	6.879

TRANS
10.000

R# 25

#A 325



FM2 BLADE 87. ACC. POS. #1. 01/82

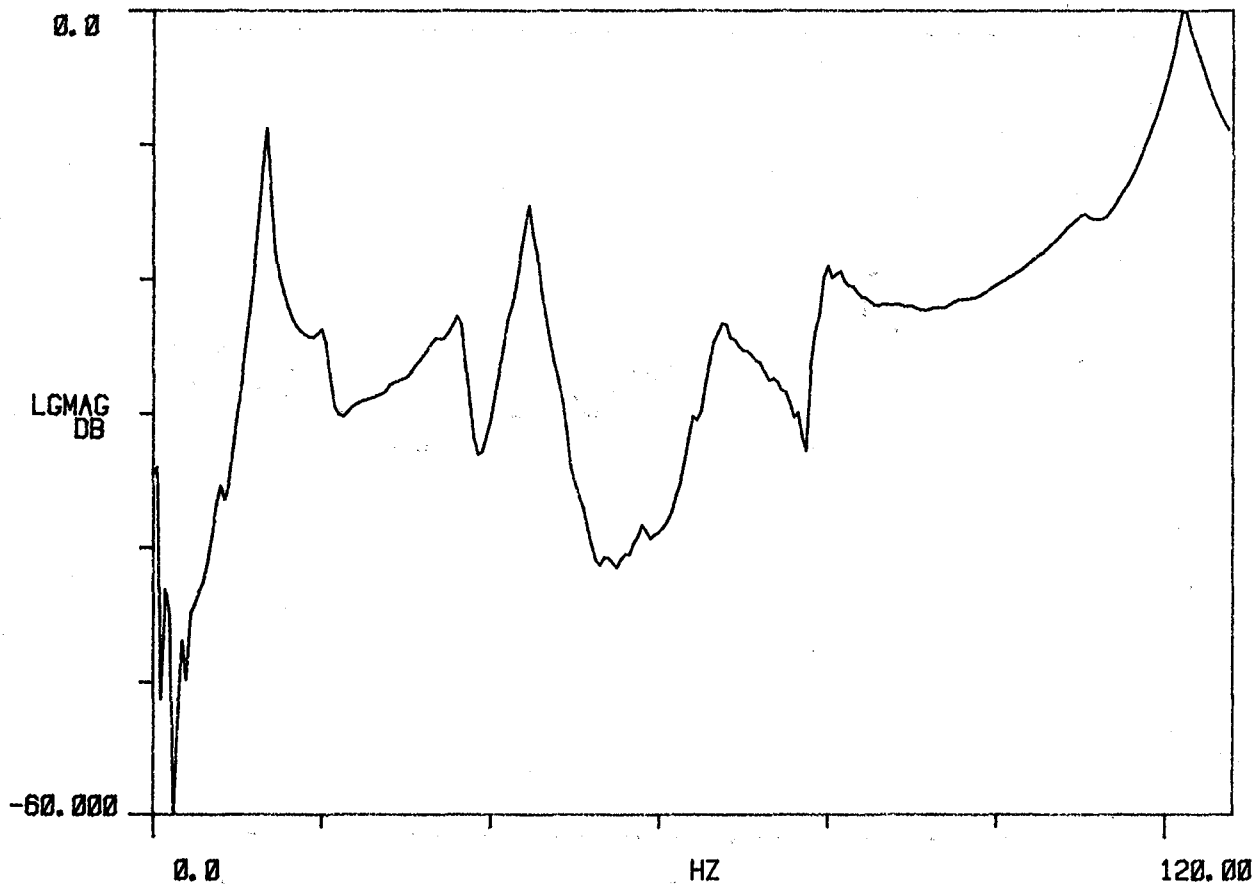
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	13.133	82.516	2.485	326.442	2.051
2	36.596	229.938	4.024	1.474	9.260
3	44.468	279.398	2.085	927.496	5.828
4	66.718	419.203	3.220	2.149	13.504
5	0.000	0.000	0.000	0.000	0.000
6	79.318	498.370	2.060	1.634	10.269
7	108.280	680.343	1.602	1.735	10.900
8	122.220	767.930	1.322	1.616	10.153

TRANS

R# 26

#A 325



FM2 BLADE 87. ACC. POS. #2. 01/82

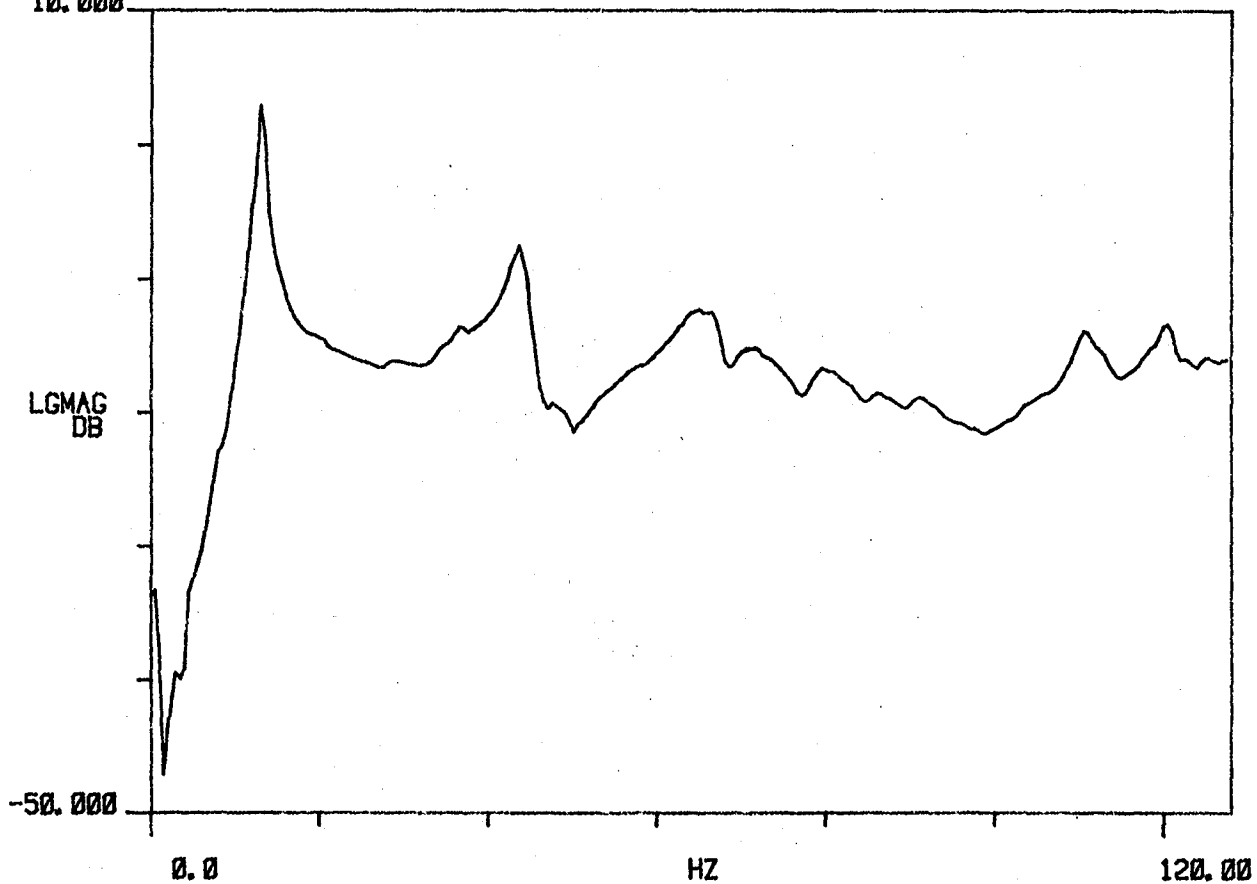
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.789	80.358	2.460	314.732	1.978
2	0.000	0.000	0.000	0.000	0.000
3	43.889	275.762	2.459	1.079	6.782
4	65.891	414.005	4.301	2.837	17.822
5	72.347	454.572	2.697	1.952	12.264
6	79.840	501.652	1.055	842.592	5.294
7	110.693	695.506	1.982	2.194	13.787
8	121.576	763.884	1.089	1.323	8.316

TRANS
10.000

R# 29

#A 325



FM2 BLADE 88. ACC. POS. #1. 01/82

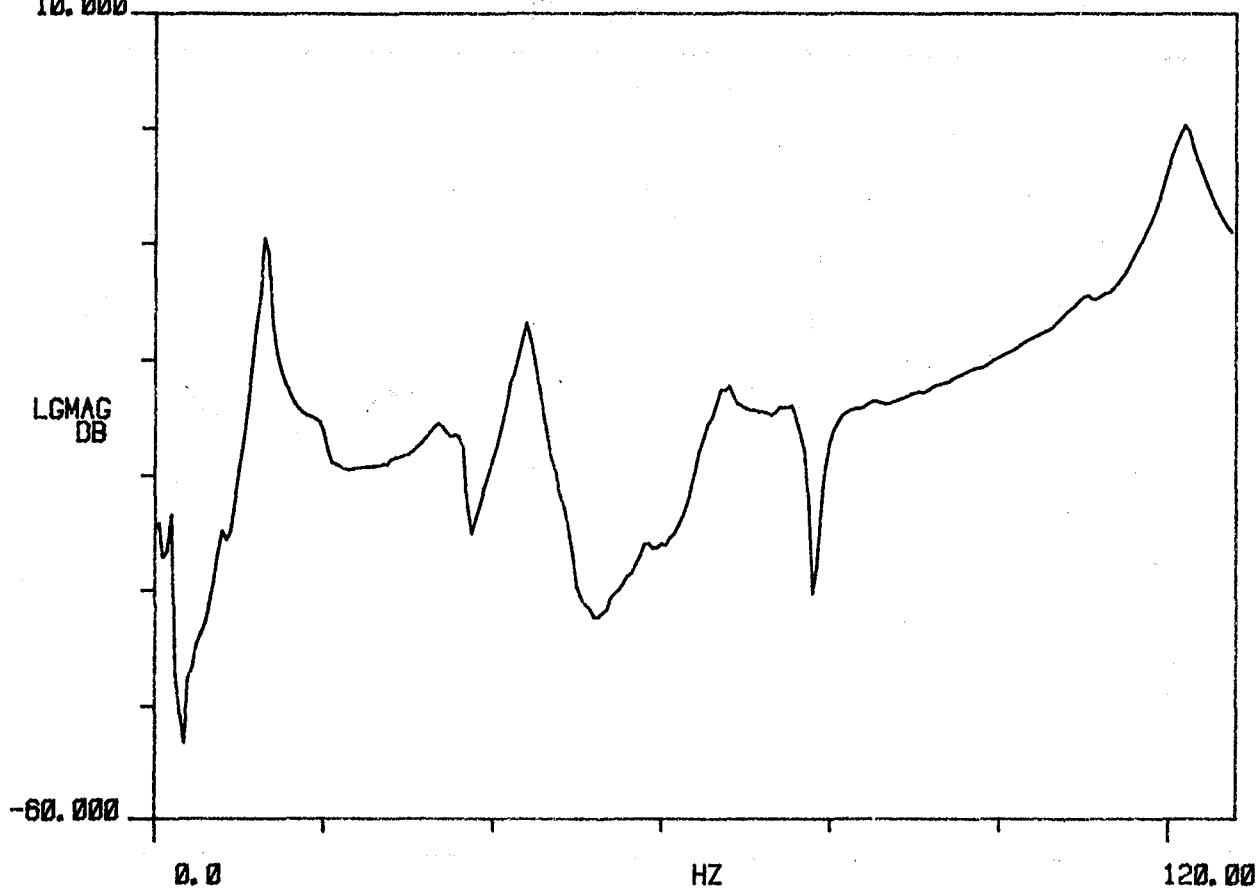
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.819	80.542	2.307	295.752	1.858
2	35.413	222.503	6.509	2.310	14.513
3	44.032	276.658	2.301	1.013	6.368
4	66.999	420.968	3.168	2.124	13.343
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	0.000	0.000	0.000	0.000	0.000
8	121.752	764.988	1.392	1.695	10.649

TRANS
10.000

R#: 30

#A: 325



FM2 BLADE 88. ACC. POS. #2. 01/82

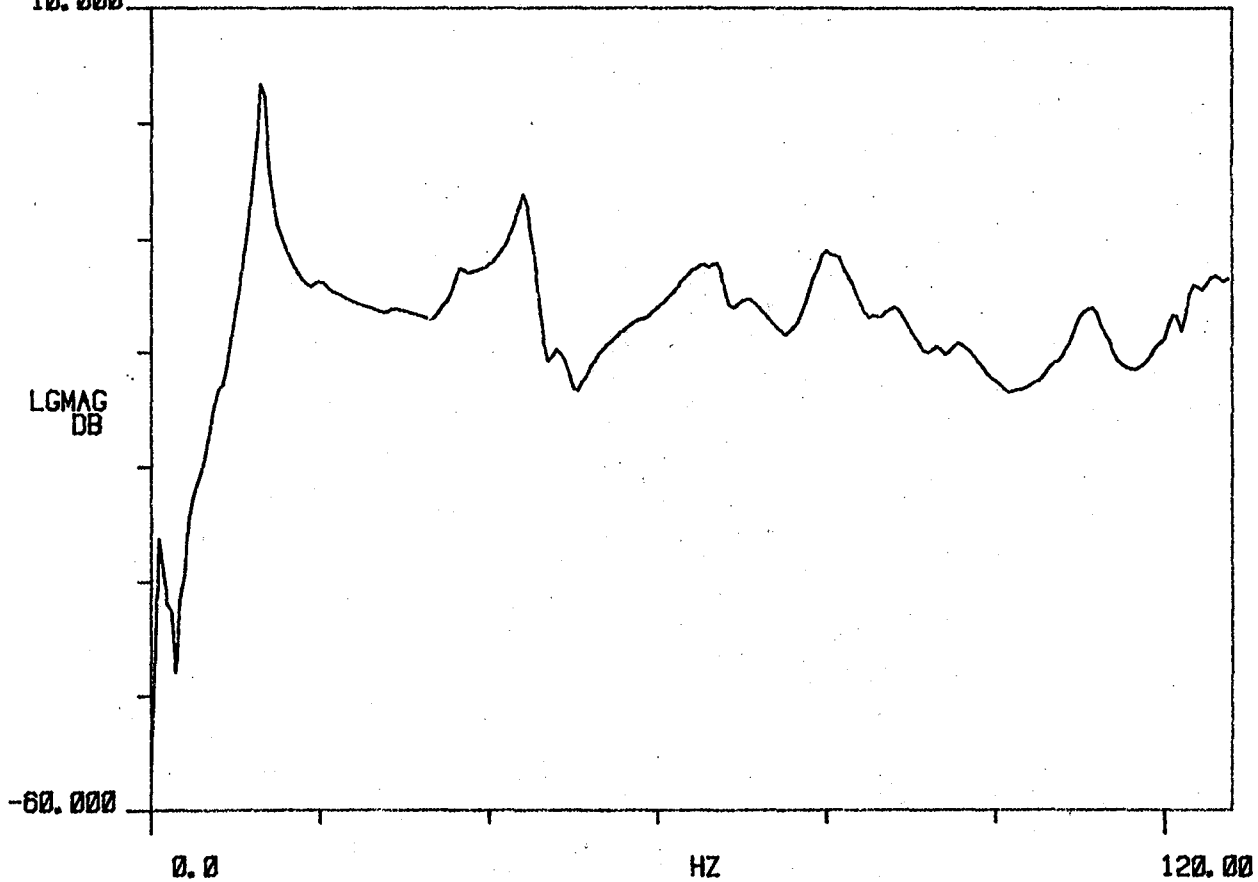
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.911	81.122	2.595	335.198 m	2.106
2	0.000	0.000	0.000	0.000	0.000
3	44.359	278.716	2.223	986.491 m	6.198
4	66.520	417.956	3.961	2.637	16.570
5	71.779	450.999	215.032 m	154.347 m	969.793 m
6	80.255	504.257	2.539	2.038	12.807
7	111.215	698.781	1.744	1.940	12.190

TRANS
10.000

R# 23

#A 325



FM2 BLADE 89. ACC. POS. #1. 01/82

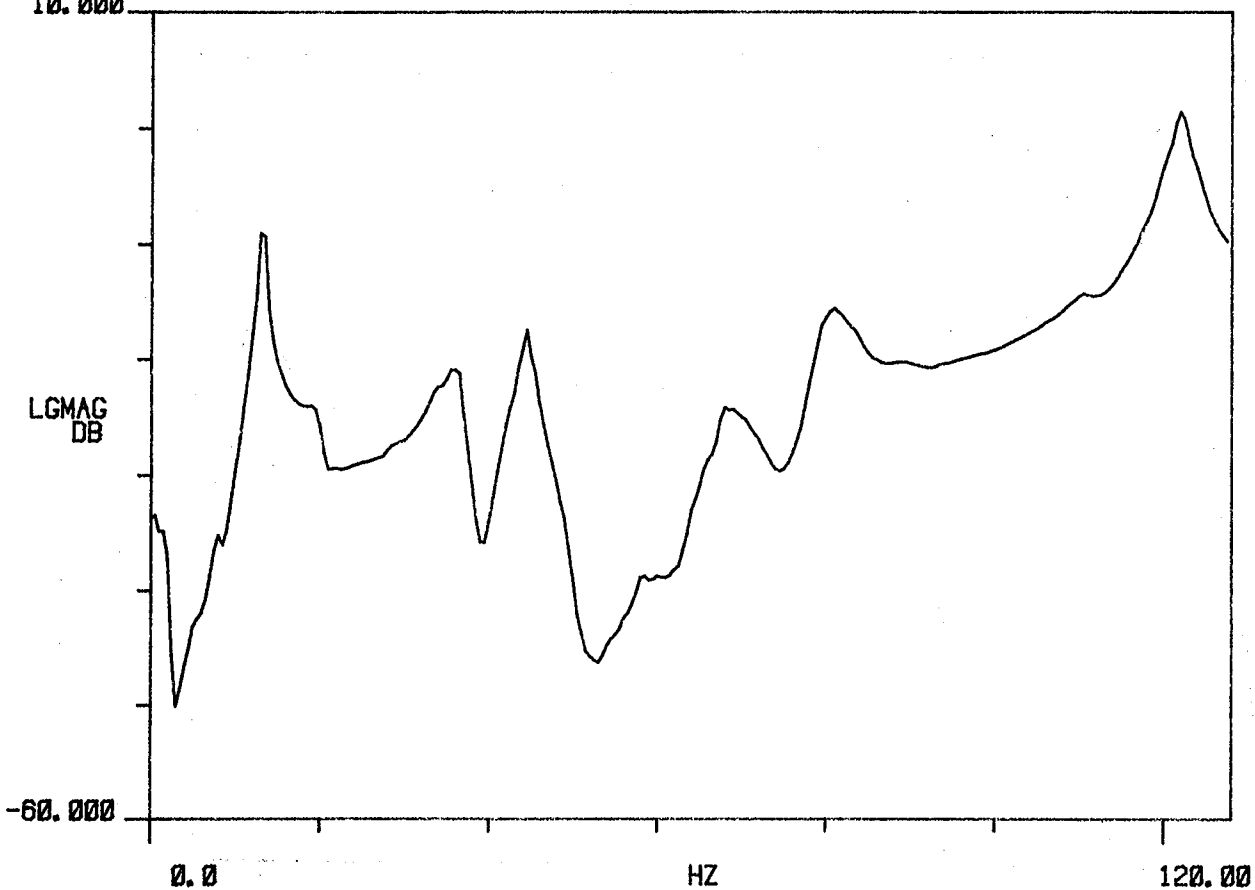
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.942	81.320	2.549	329.950	2.073
2	36.221	227.585	4.091	1.483	9.318
3	44.471	279.420	2.167	963.852	6.056
4	68.994	433.504	3.899	2.692	16.914
5	0.000	0.000	0.000	0.000	0.000
6	80.177	503.765	2.580	2.069	13.001
7	0.000	0.000	0.000	0.000	0.000
8	121.948	766.222	1.190	1.451	9.116

TRANS
10.000

R# 24

#A 325



FM2 BLADE 89. ACC. POS. #2. 01/82

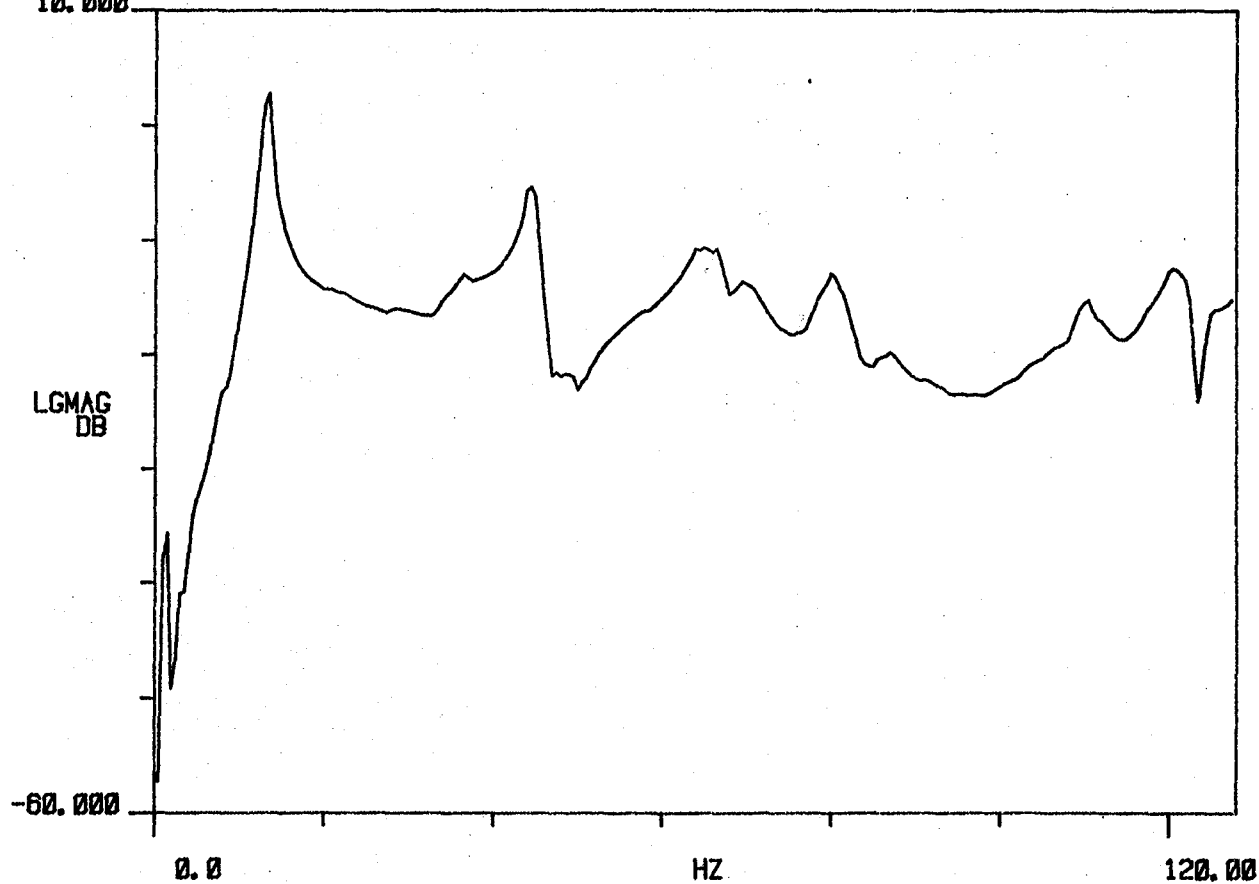
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.969	81.485	2.219	287.900 m	1.809
2	0.000	0.000	0.000	0.000	0.000
3	44.697	280.837	1.568	700.775 m	4.403
4	65.353	410.623	3.624	2.370	14.889
5	71.260	447.742	2.064	1.471	9.241
6	80.538	506.036	1.841	1.483	9.315
7	110.031	691.348	1.363	1.499	9.421
8	121.825	765.451	975.684 m	1.189	7.469

TRANS
10.000

R# 21

#A 325



FM2 BLADE 91. ACC. POS. #1. 01/82

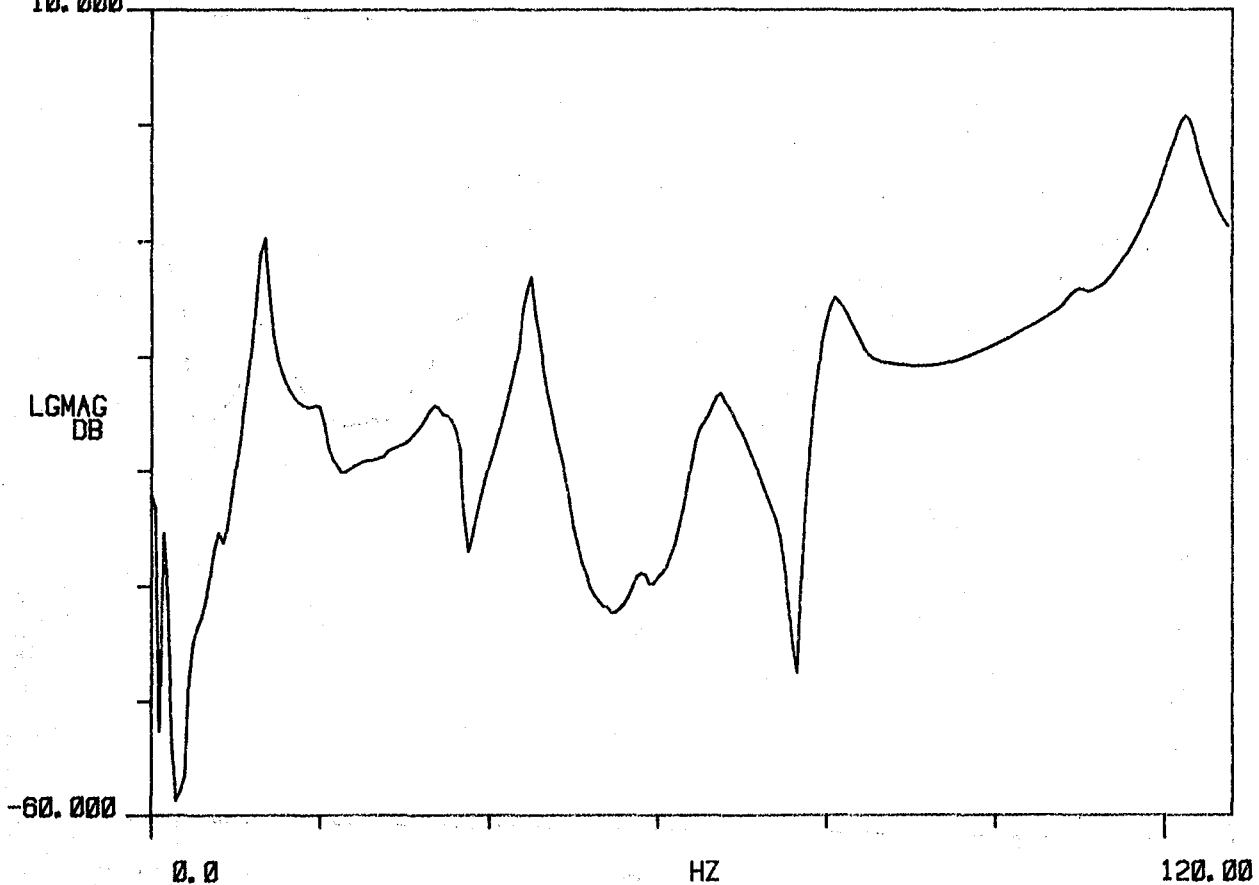
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.991	81.624	2.330	302.801	1.903
2	35.019	220.028	6.231	2.186	13.737
3	44.737	281.091	1.562	698.673	4.390
4	66.964	420.746	3.263	2.186	13.738
5	0.000	0.000	0.000	0.000	0.000
6	80.635	506.643	1.928	1.555	9.768
7	0.000	0.000	0.000	0.000	0.000
8	122.385	768.966	1.372	1.679	10.551

TRANS
10.000

R# 22

#A 325



FM2 BLADE 91. ACC. POS. #2. 01/82

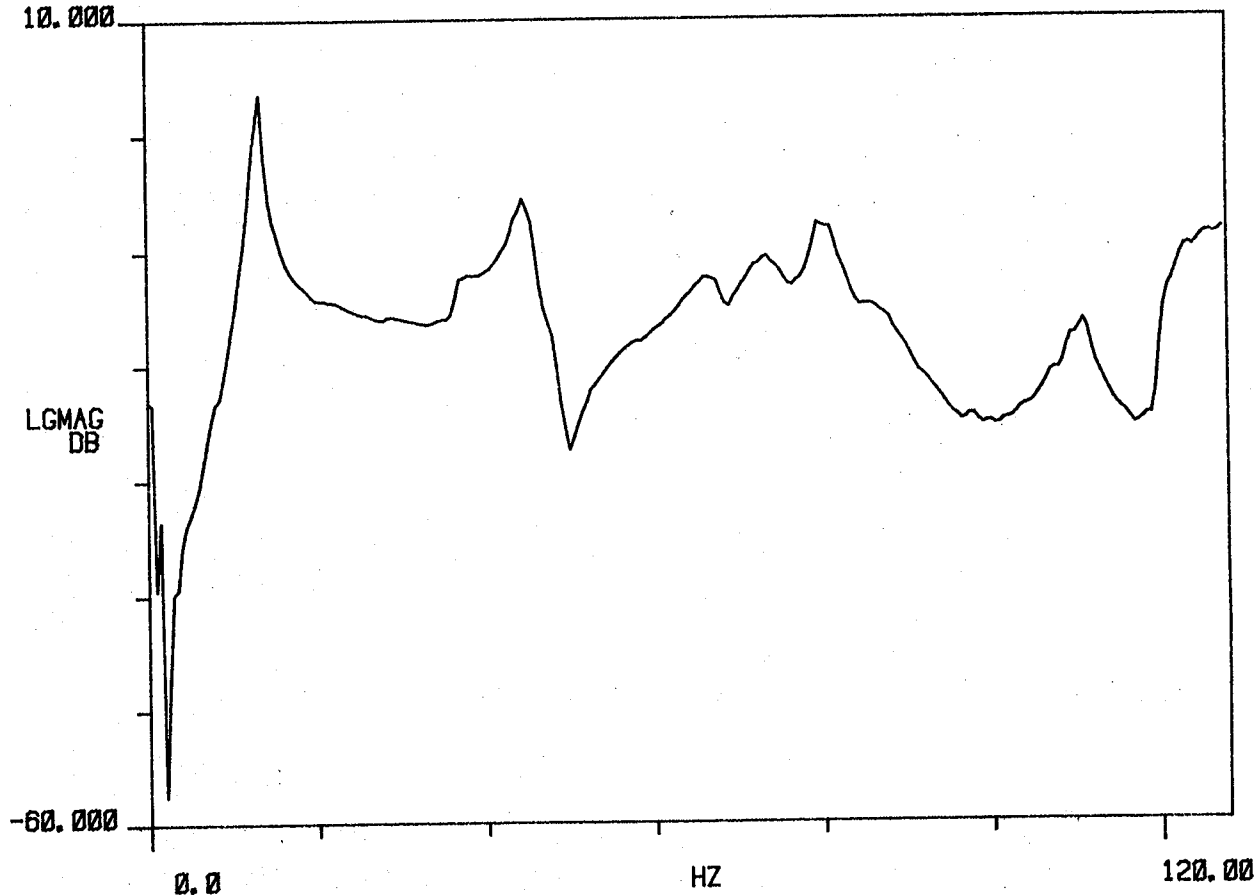
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	13.078	82.171	1.971	257.760	1.620
2	36.581	229.846	6.103	2.237	14.053
3	44.887	282.035	2.834	1.273	7.996
4	66.213	416.030	2.559	1.695	10.651
5	72.792	457.365	2.600	1.893	11.896
6	80.465	505.578	1.760	1.416	8.900
7	110.988	697.360	1.379	1.530	9.616
8	122.273	768.262	2.540	3.107	19.522

TRANS
10.000

R# 15

#A 325



FM2 BLADE 90. ACC. POS. #1. 01/82

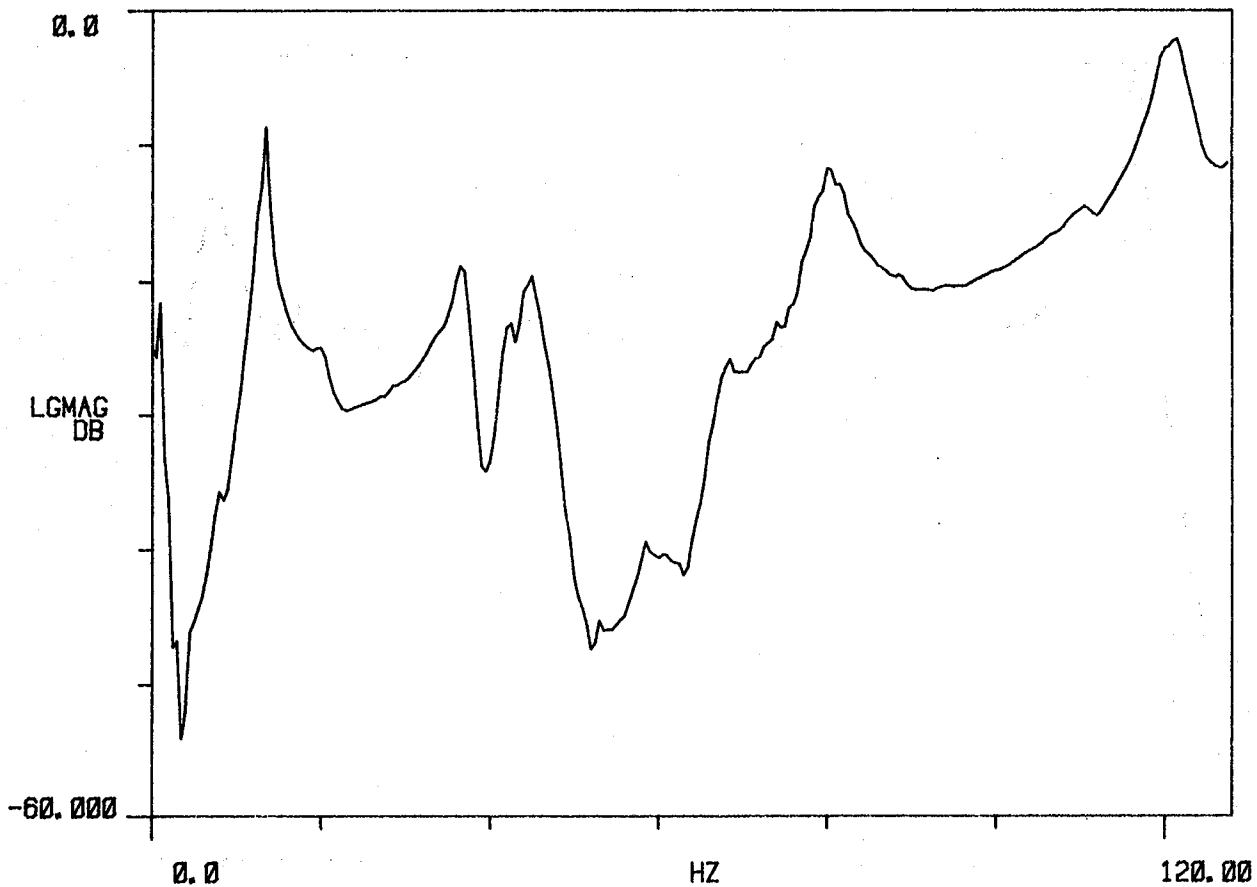
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	13.149	82.616	1.771	232.936	1.464
2	36.892	231.802	2.244	828.011	5.203
3	44.866	281.899	3.004	1.348	8.473
4	67.545	424.397	2.795	1.888	11.865
5	72.792	457.365	2.600	1.893	11.896
6	79.821	501.531	2.055	1.641	10.308
7	109.944	690.799	-744.150	-818.171	-5.141
8	120.867	759.430	1.391	1.681	10.564

TRANS

R# 16

#A 325



FM2 BLADE 90. ACC. POS. #2. 01/82

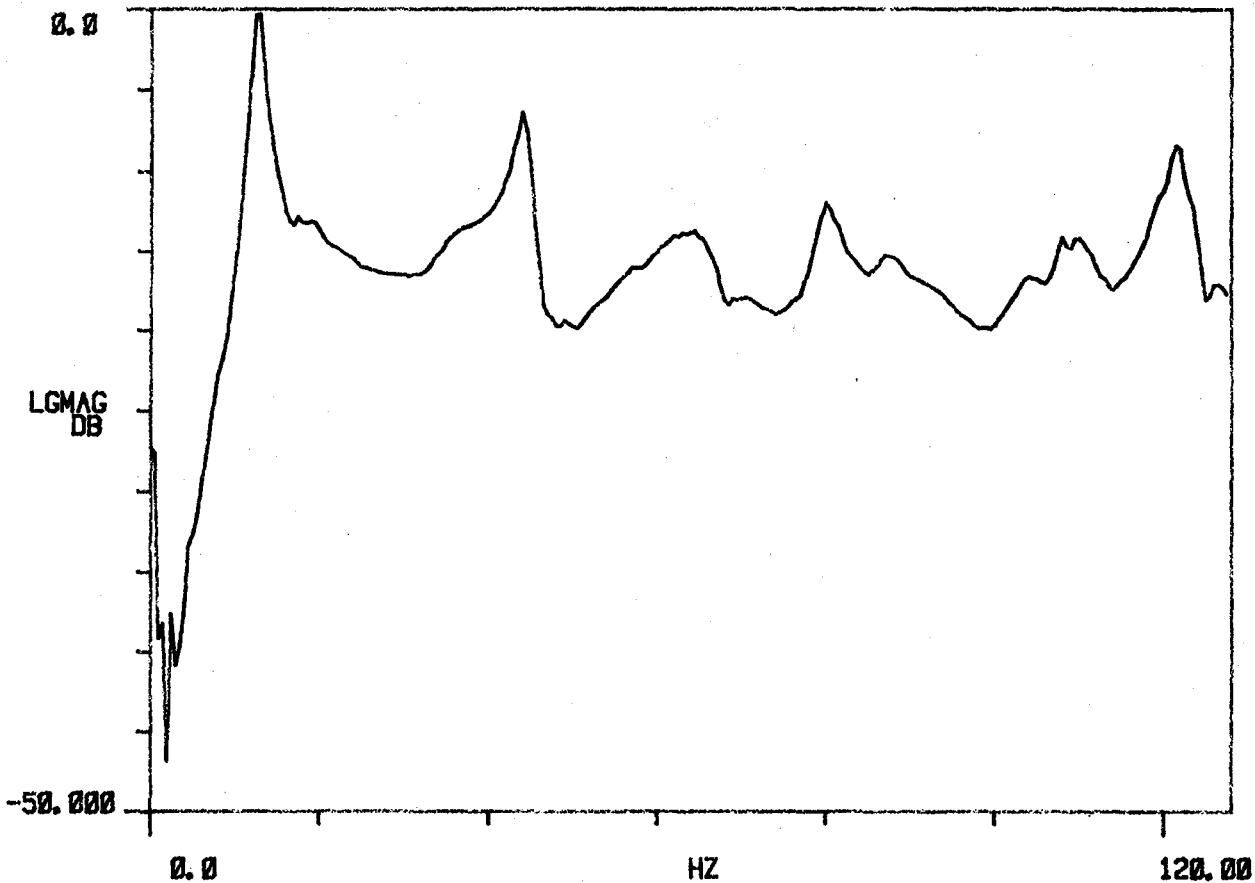
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	X	HZ	R/S
1	12.564	78.944	4.656	585.693 m	3.680
2	32.108	201.741	14.441	4.686	29.441
3	44.369	278.781	2.157	957.202 m	6.014
4	64.921	407.909	5.319	3.458	21.726
5	72.583	456.052	-2.307	-1.675	-10.524
6	79.964	502.426	1.847	1.477	9.282
7	109.442	687.646	2.305	2.524	15.858
8	122.220	767.931	999.720 m	1.222	7.678

TRANS

R# 27

#A 325



FM3 BLADE 92. ACC. POS. #1. 01/82

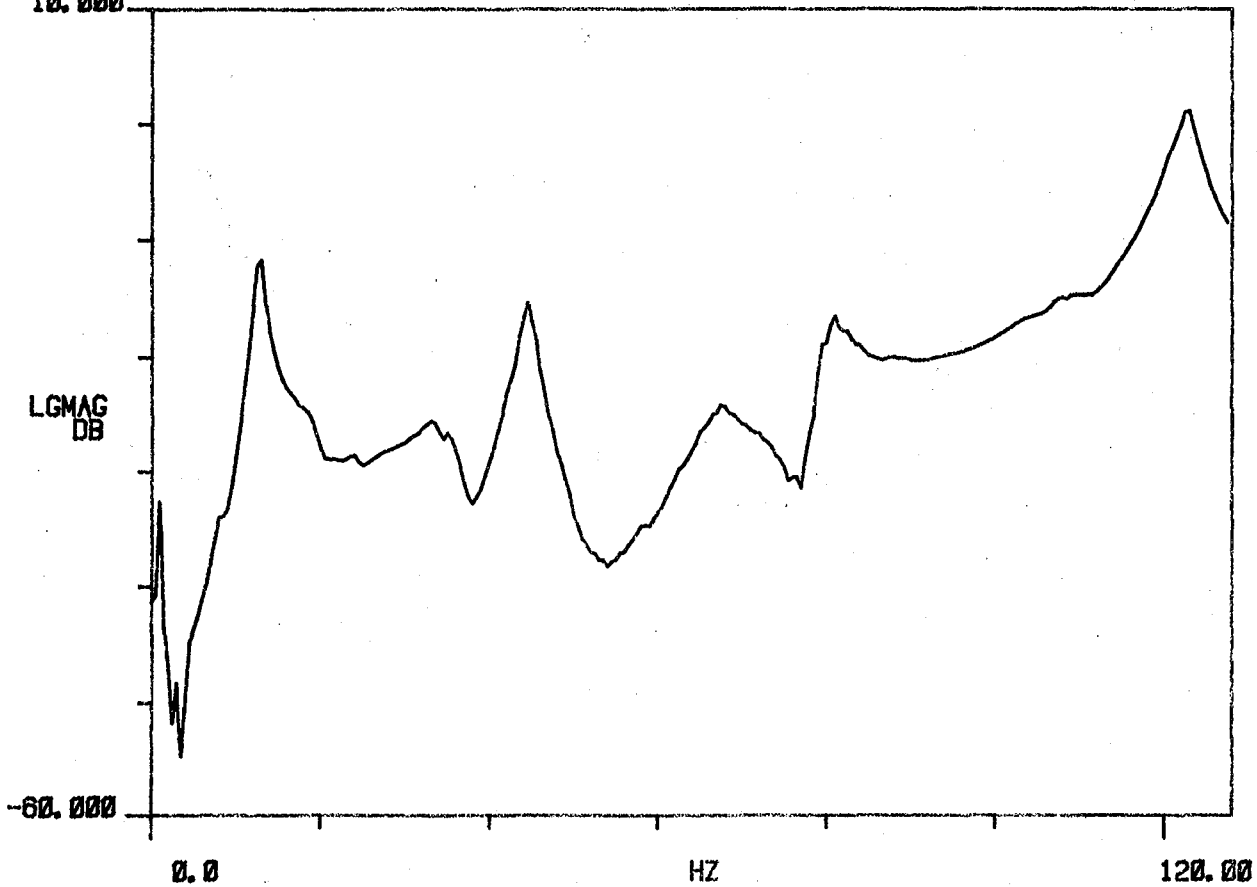
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.596	79.142	4.713	594.277 m	3.734
2	34.084	214.155	8.145	2.785	17.501
3	44.462	279.361	2.169	984.622 m	6.061
4	67.084	421.500	5.527	3.713	23.330
5	0.000	0.000	0.000	0.000	0.000
6	80.061	503.036	2.080	1.666	10.467
7	106.387	668.450	631.713 m	672.074 m	4.223
8	122.613	770.403	1.399	1.716	10.780

TRANS
10.000

R# 28

#A 325



FM3 BLADE 92. ACC. POS. #2. 01/82

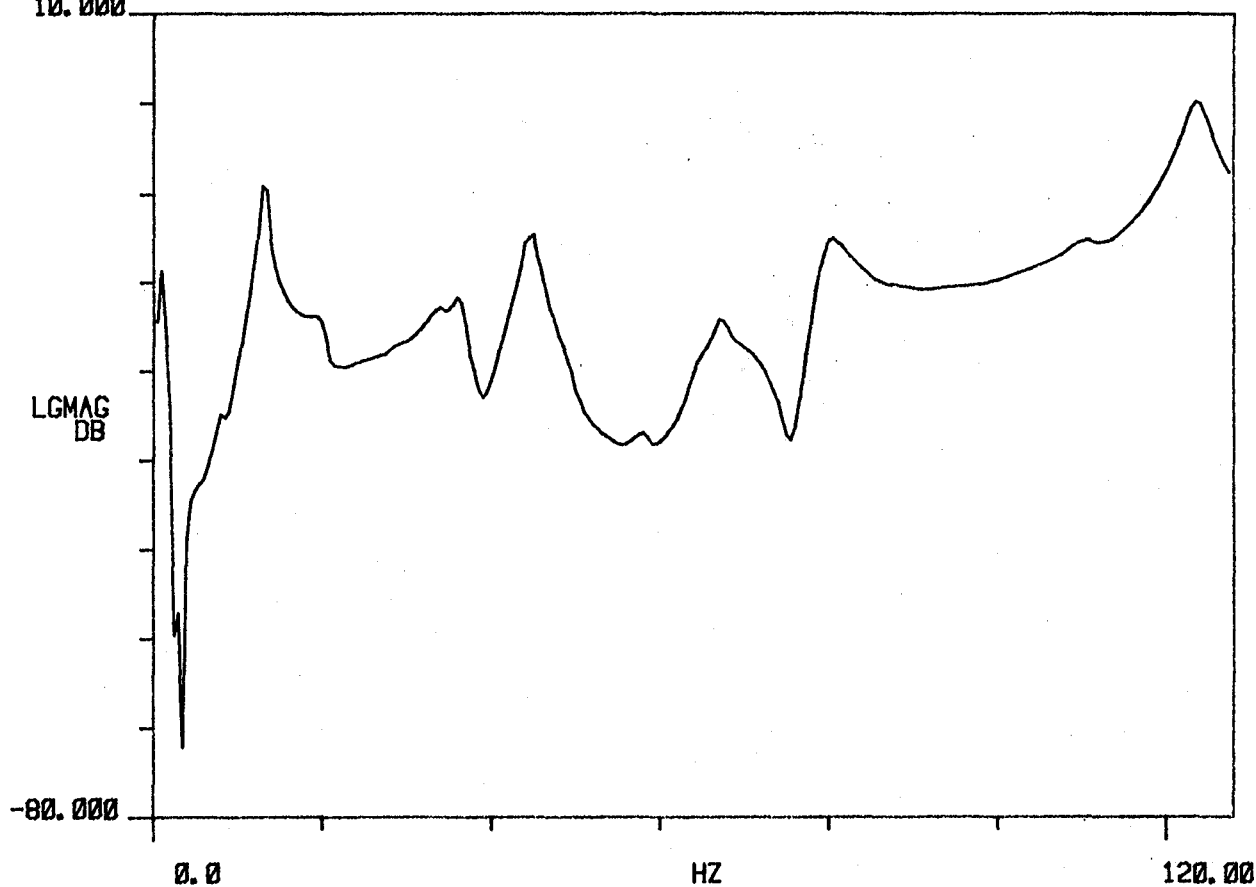
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.921	81.184	2.792	360.907	2.268
2	36.402	228.721	4.395	1.601	10.062
3	44.608	280.283	2.042	911.129	5.725
4	67.195	422.201	3.749	2.521	15.838
5	0.000	0.000	0.000	0.000	0.000
6	79.949	502.336	2.091	1.672	10.505
7	108.762	683.372	3.115	3.390	21.297
8	123.570	776.415	1.269	1.568	9.850

TRANS
10.000

R#: 19

#A: 325



FM2 BLADE 93. ACC. POS. #1. 01/82

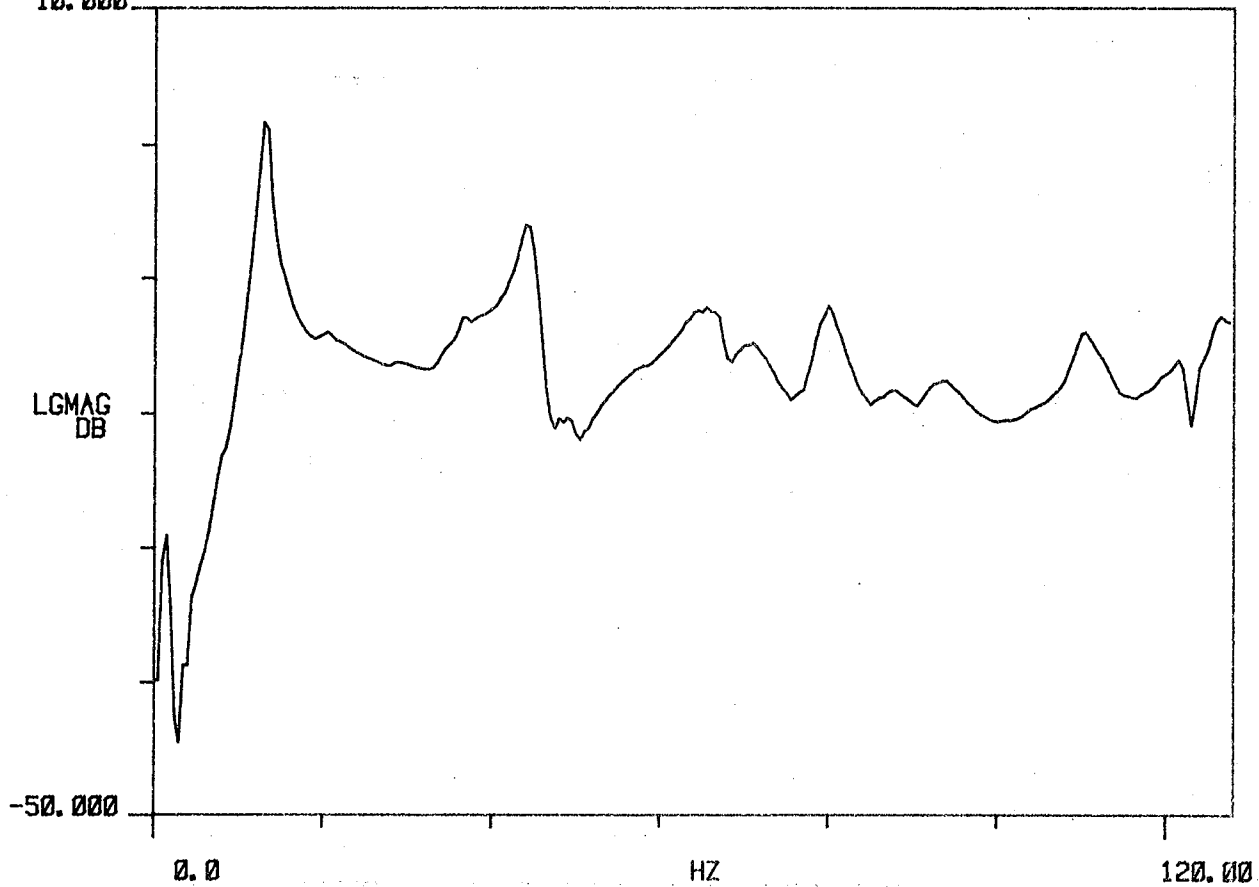
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.862	80.812	2.815	362.141 m	2.275
2	35.076	220.388	7.447	2.619	16.458
3	44.521	279.736	2.164	963.706 m	6.055
4	65.881	413.941	3.765	2.482	15.596
5	72.108	453.069	1.282	924.240 m	5.807
6	80.018	502.765	1.730	1.385	8.699
7	110.548	694.596	1.719	1.900	11.939

TRANS
10.000

R# 20

#A 325



FM2 BLADE 93. ACC. POS. #2. 01/82

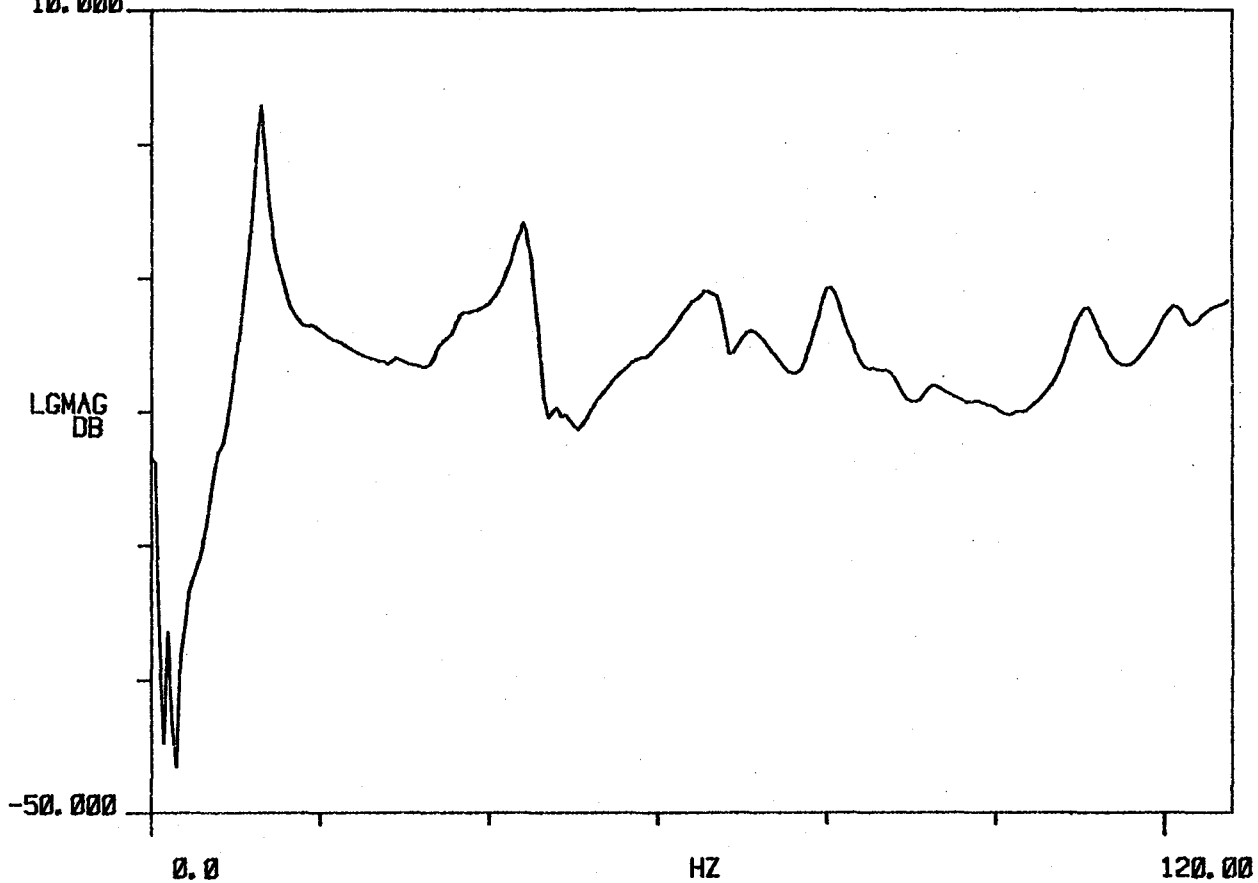
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.888	80.978	3.484	449.257	2.823
2	34.869	219.089	10.032	3.516	22.090
3	44.352	278.673	2.383	1.057	6.642
4	66.375	417.045	3.578	2.376	14.930
5	72.101	453.024	1.175	847.083	5.322
6	80.398	505.157	1.714	1.378	8.660
7	110.545	694.578	1.708	1.888	11.864
8	122.106	767.212	1.032	1.261	7.921

TRANS
10.000

R# 17

#A 325



FM2 BLADE 94. ACC. POS. #1. 01/82

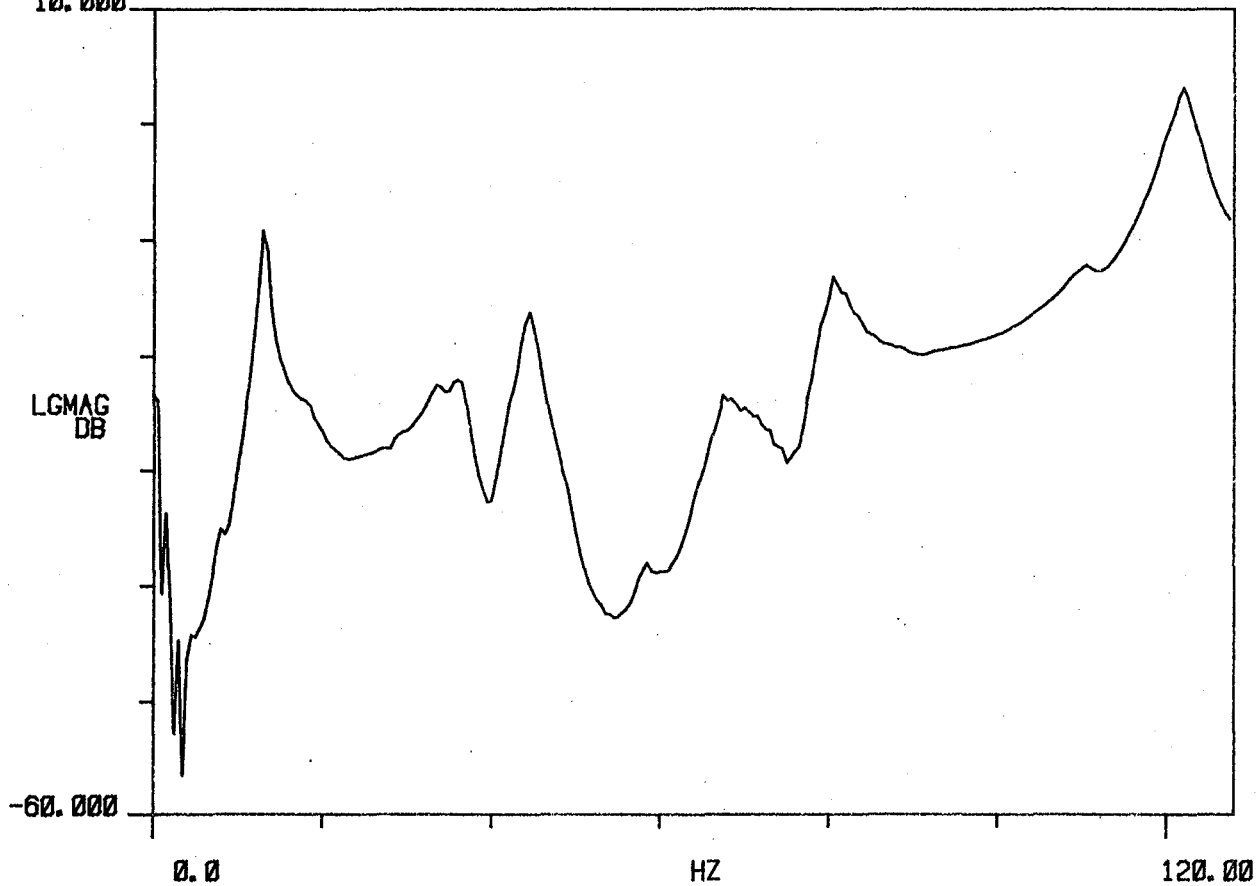
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.929	81.238	3.294	426.169 m	2.678
2	36.198	227.438	6.142	2.228	13.997
3	44.499	279.596	2.190	974.735 m	6.124
4	0.000	0.000	0.000	0.000	0.000
5	68.952	433.236	4.204	2.901	18.230
6	80.269	504.343	2.055	1.650	10.368
7	109.080	685.370	-719.912 m	-785.301 m	-4.934
8	121.904	765.944	1.329	1.621	10.183

TRANS
10.000

R# 18

#A 325



FM2 BLADE 94. ACC. POS. #2. 01/82

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	13.075	82.153	2.261	295.697	1.858
2	36.231	227.646	5.017	1.820	11.436
3	45.017	282.849	1.663	748.529	4.703
4	66.715	419.180	2.026	1.352	8.494
5	72.618	456.275	2.537	1.843	11.577
6	81.951	514.913	2.371	1.944	12.213
7	109.762	689.653	1.534	1.684	10.581
8	124.506	782.297	1.898	2.363	14.849

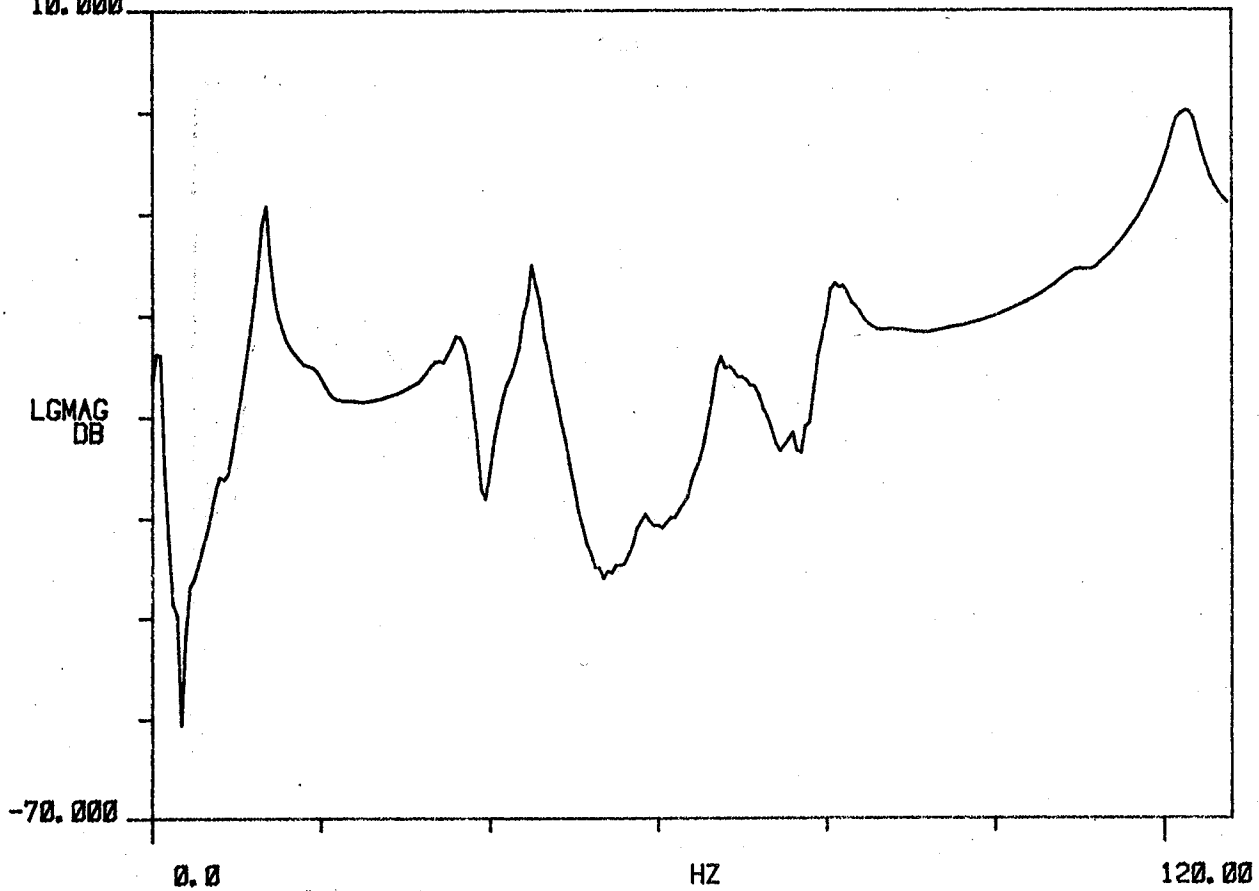
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	13.085	82.218	2.429	317.978	1.998
2	36.982	232.386	3.639	1.347	8.463
3	45.122	283.509	1.668	752.583	4.729
4	67.517	424.224	2.793	1.887	11.853
5	0.000	0.000	0.000	0.000	0.000
6	80.660	506.801	1.873	1.511	9.494
7	111.388	699.869	-2.966	-3.305	-20.764
8	122.397	769.045	1.262	1.545	9.709

TRANS
10.000

R# 2

#A: 325



FM3 BLADE 95. ACC. POS. #2. 01/82

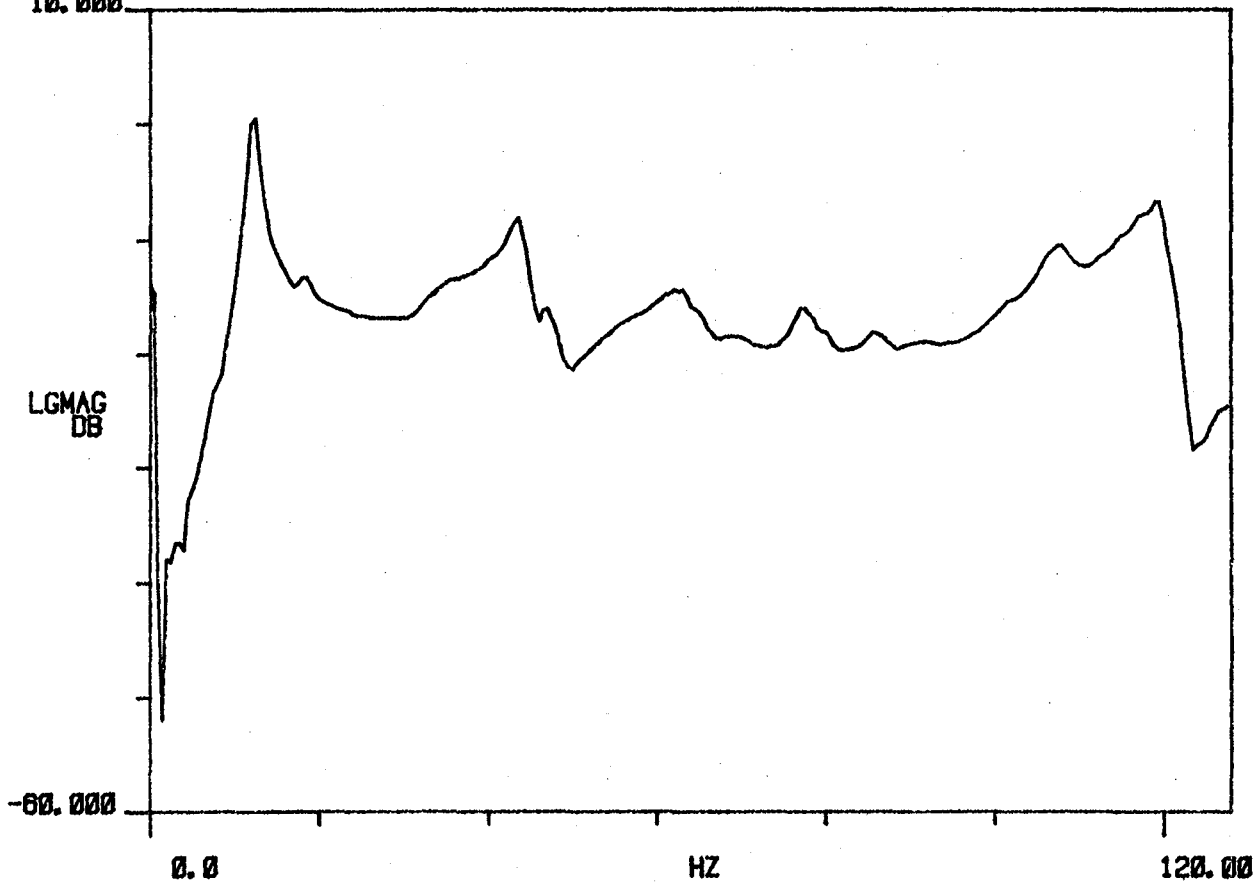
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.118	76.137	4.273	518.200	3.258
2	32.183	202.211	17.827	5.783	36.211
3	42.412	266.479	2.197	931.854	5.855
4	62.709	394.010	4.236	2.858	16.704
5	0.000	0.000	0.000	0.000	0.000
6	77.452	486.644	1.648	1.276	8.020
7	107.313	674.264	2.260	2.426	15.240
8	119.384	750.113	1.674	1.998	12.556

TRANS
10.000

R# 29

#A 325



FM4 BLADE 8. ACC. POS. #1. 3/82

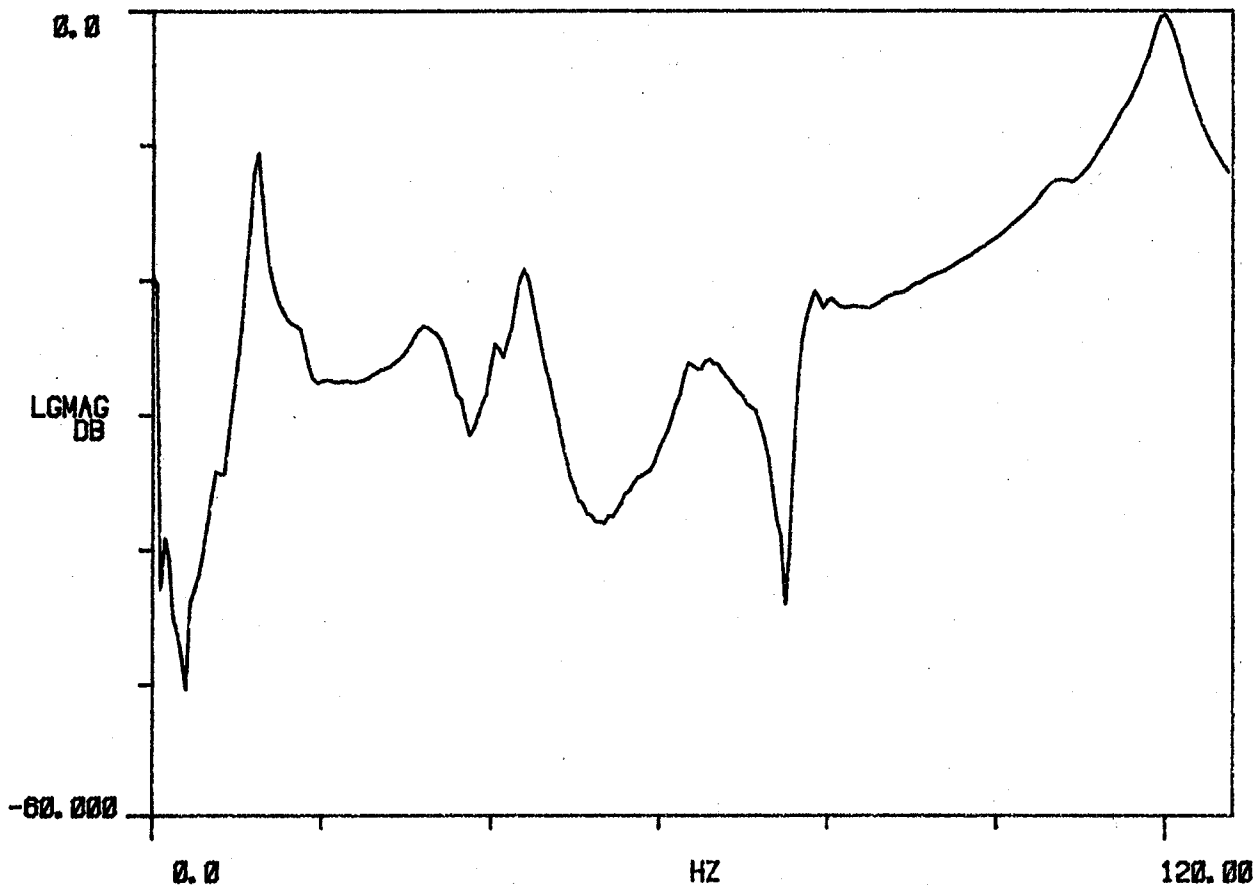
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.171	76.470	4.130	503.060	3.161
2	33.237	208.837	7.885	2.629	16.517
3	44.177	277.575	2.957	1.307	8.212
4	64.672	406.349	5.464	3.539	22.236
5	0.000	0.000	0.000	0.000	0.000
6	76.908	483.228	2.192	1.686	10.593
7	105.033	659.943	2.333	2.451	15.399
8	119.985	753.889	1.698	2.037	12.799

TRANS

R# 30

#A 325



FM4 BLADE 8. ACC. POS. #2. 3/82

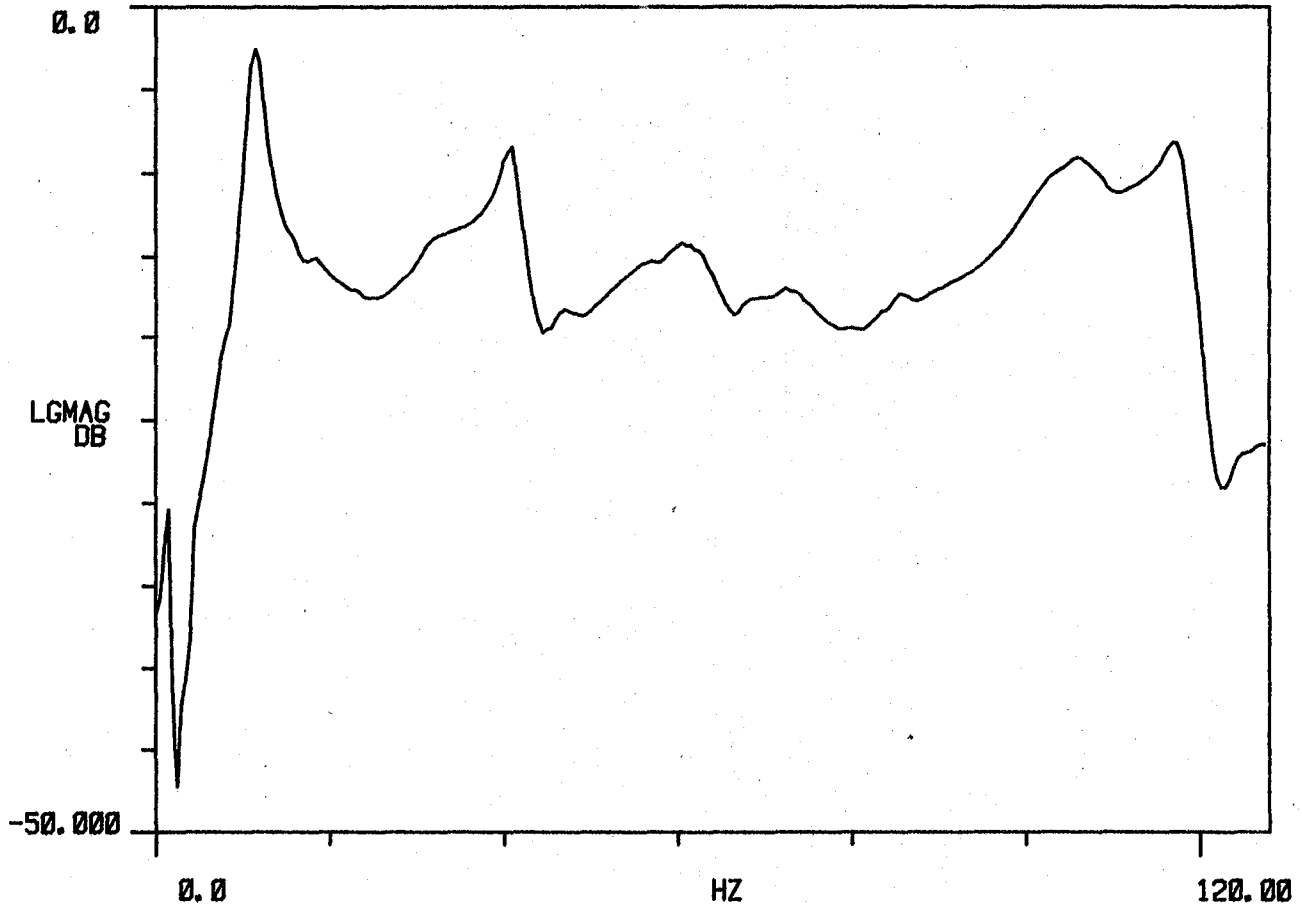
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.307	71.044	5.437	615.632	3.868
2	29.913	187.952	16.856	5.115	32.141
3	41.093	258.197	2.934	1.206	7.579
4	62.256	391.165	5.321	3.317	20.843
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.859	665.134	5.284	5.601	35.195
8	117.880	740.664	1.591	1.876	11.785

TRANS

R#: 5

#A: 325



FM4 BLADE 17. ACC. POS. #1. 3/82

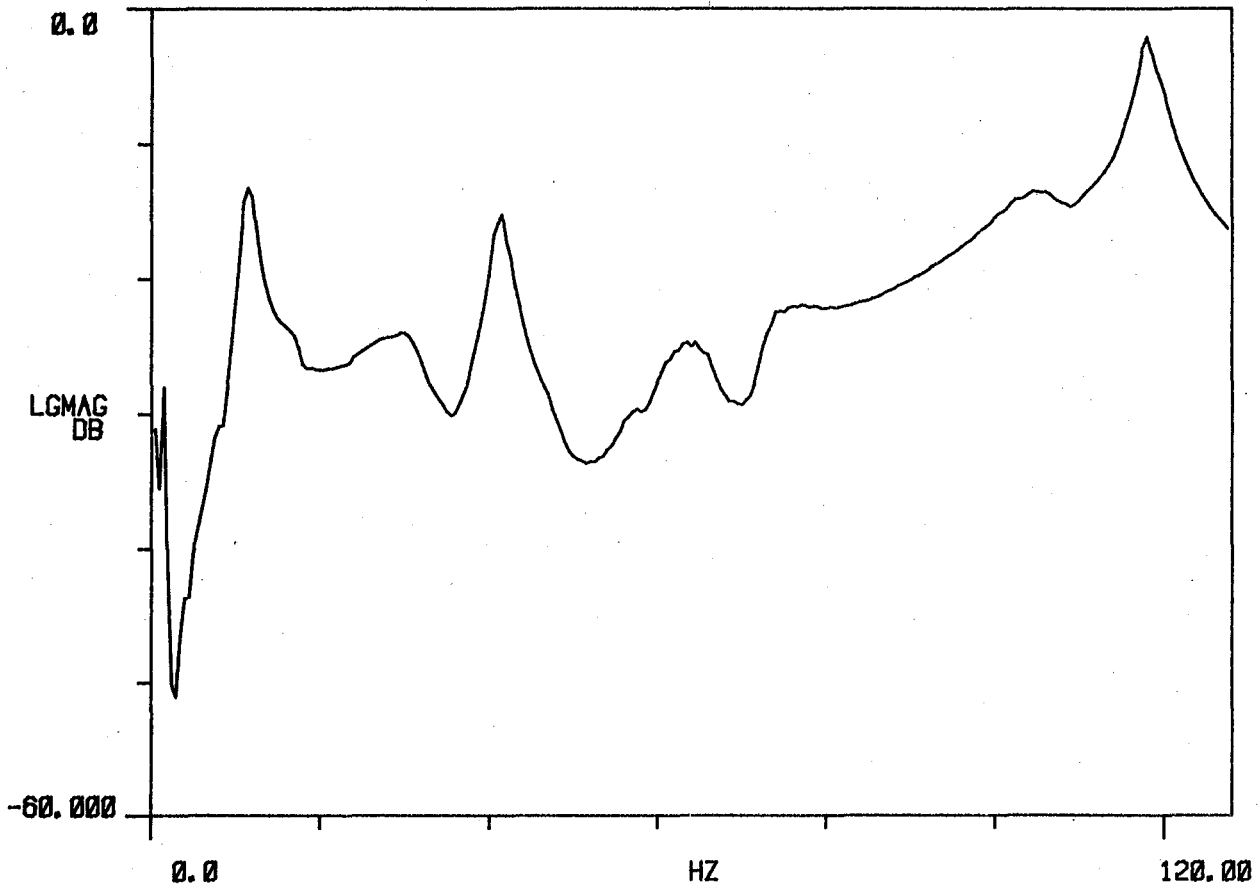
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.302	71.011	5.392	610.238	3.834
2	30.640	192.518	11.661	3.598	22.604
3	41.205	258.898	2.621	1.080	6.788
4	63.239	397.342	6.136	3.888	24.427
5	0.000	0.000	0.000	0.000	0.000
6	72.323	454.416	5.053	3.659	22.992
7	103.325	649.210	4.212	4.356	27.369
8	118.138	742.283	1.331	1.573	9.881

TRANS

R# 6

#A 325



FM4 BLADE 17. ACC. POS. #2. 3/82

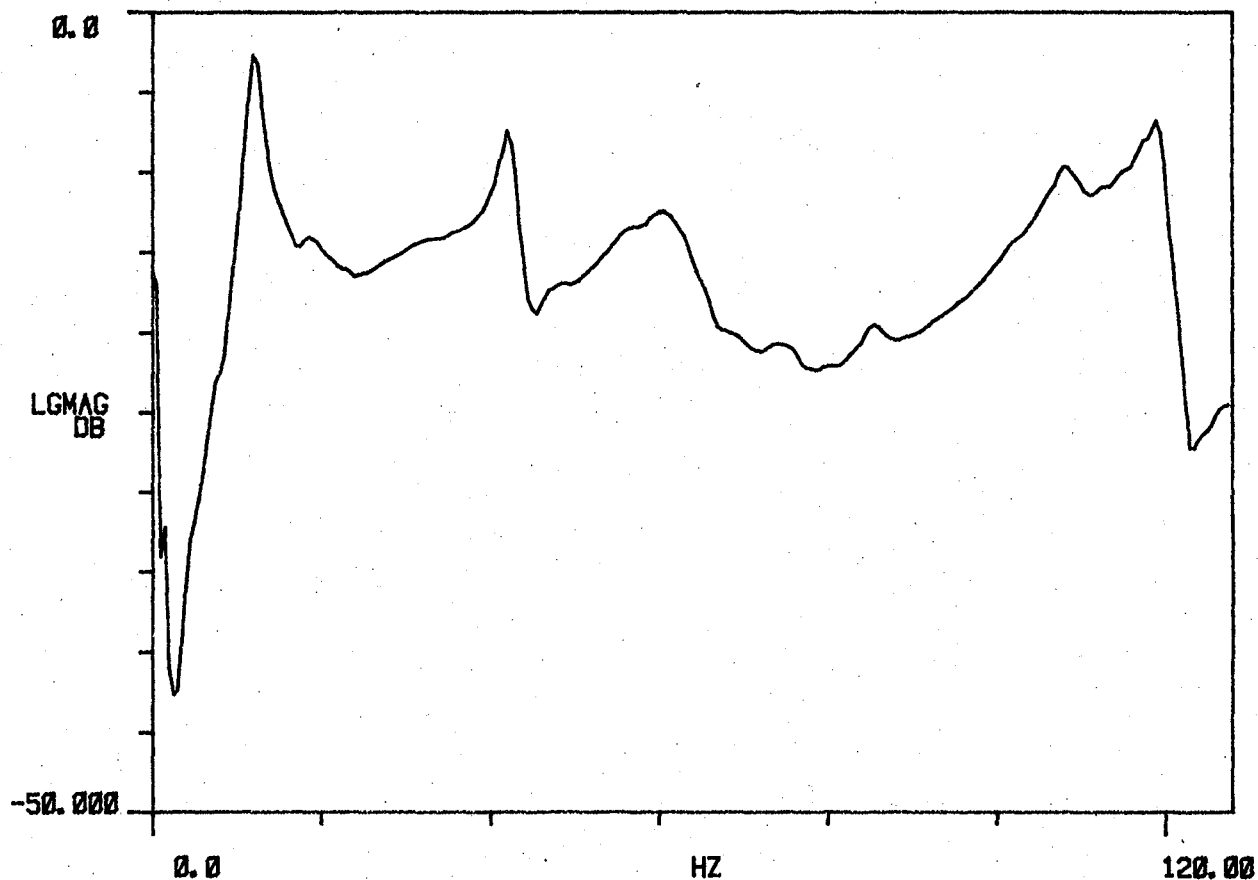
FREQUENCY AND DAMPING

FREQUENCY			DAMPING		
MODE NO.	HZ	R/S	%	HZ	R/S
1	11.925	74.926	5.812	694.193	4.362
2	0.000	0.000	0.000	0.000	0.000
3	42.433	266.615	2.258	958.340	6.021
4	61.785	388.206	5.914	3.661	23.001
5	0.000	0.000	0.000	0.000	0.000
6	75.961	477.277	-1.169	-888.253	-5.581
7	108.303	680.486	2.964	3.211	20.178
8	119.264	749.355	1.418	1.692	10.629

TRANS

R# 25

#A: 325



FM4 BLADE 18. ACC. POS. #1. 3/82

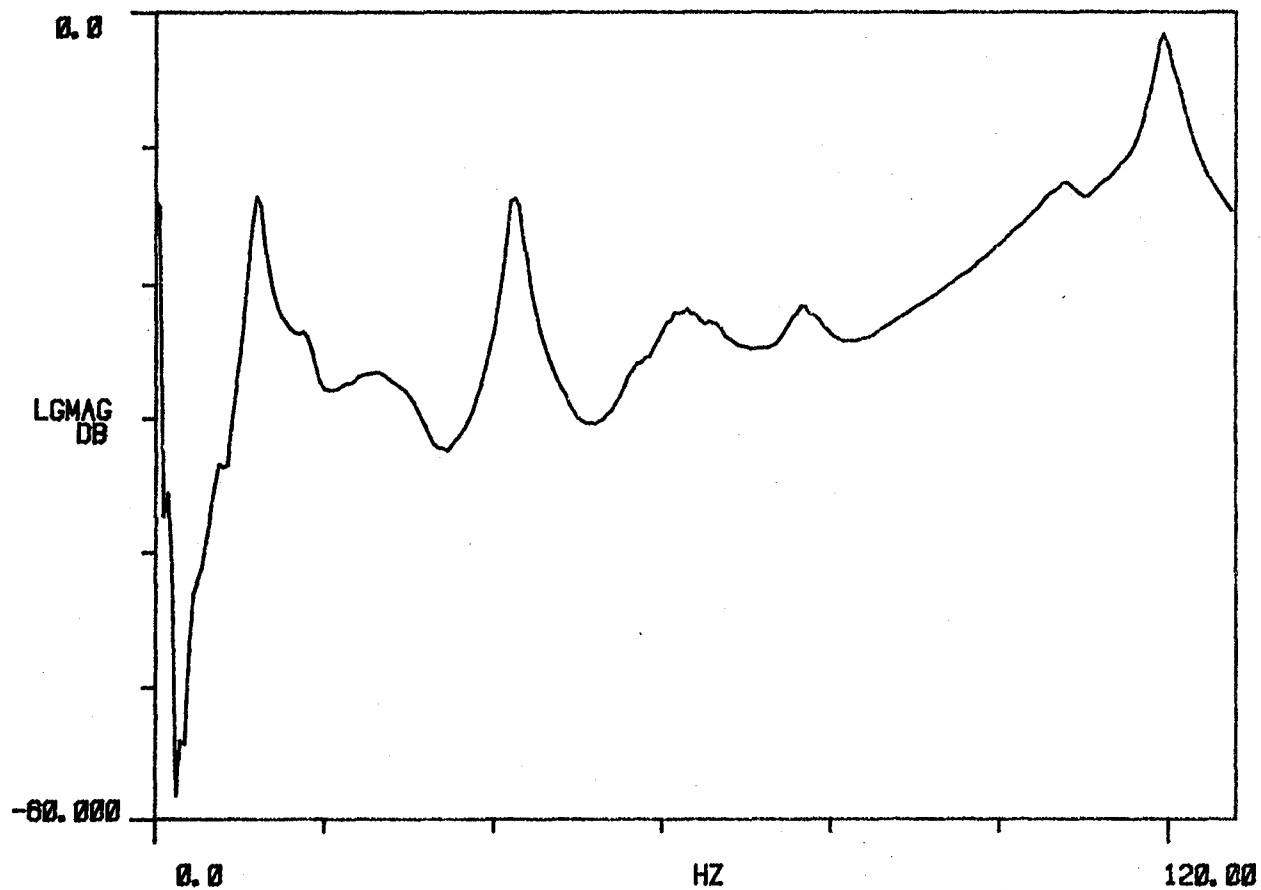
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.852	74.470	6.044	717.695	4.509
2	27.469	172.595	19.521	5.468	34.354
3	42.441	266.663	2.149	912.214	5.732
4	61.077	383.757	6.666	4.081	25.640
5	0.000	0.000	0.000	0.000	0.000
6	76.519	480.783	2.948	2.257	14.180
7	106.637	670.017	2.607	2.781	17.474
8	119.610	751.530	1.236	1.479	9.290

TRANS

R# 26

#A 325



FM4 BLADE 18. ACC. POS. #2. 3/82

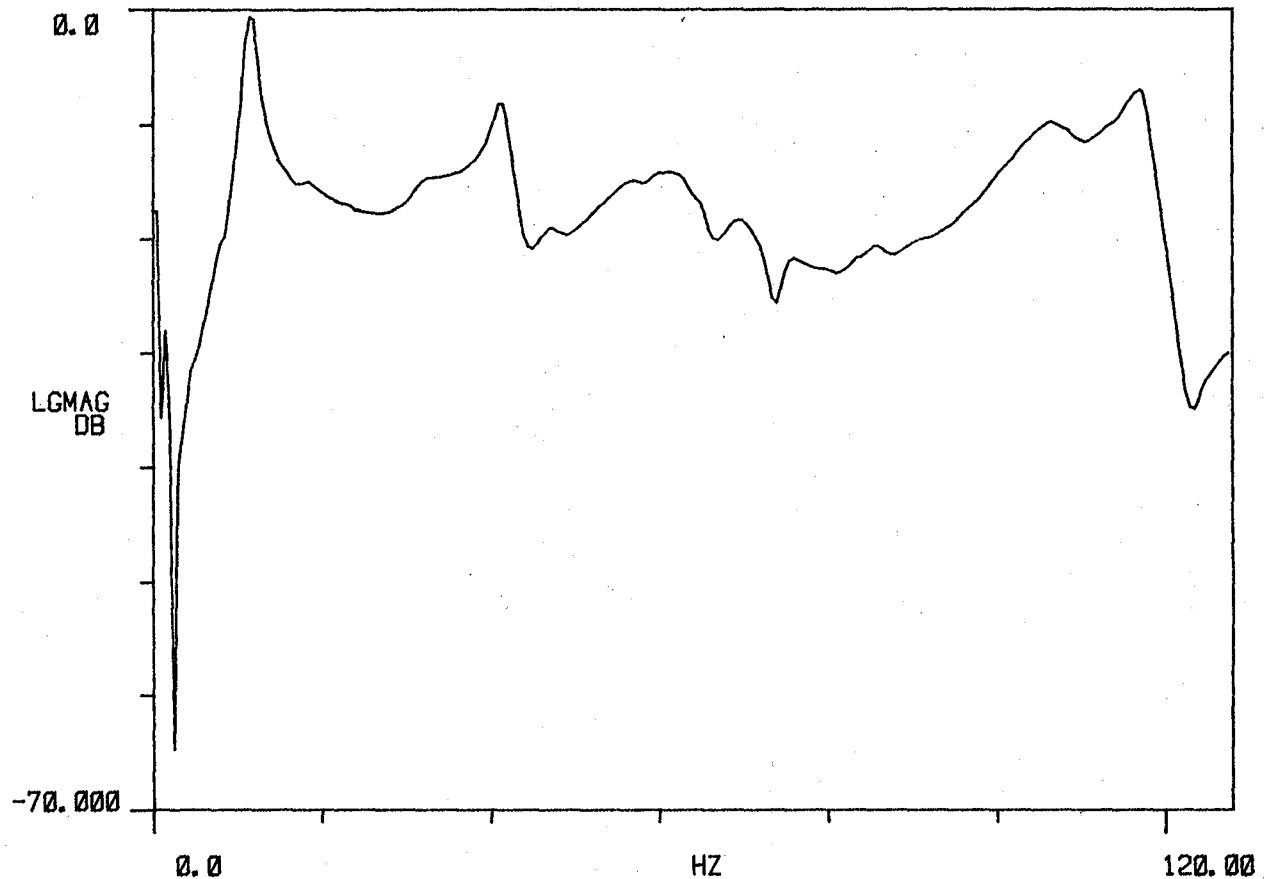
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.422	71.766	3.878	443.245 m	2.785
2	29.340	184.349	10.770	3.178	19.970
3	41.585	261.286	2.485	1.034	6.495
4	62.635	393.550	5.916	3.712	23.325
5	71.245	447.645	1.943	1.384	8.697
6	75.528	474.558	45.612 m	34.450 m	216.453 m
7	106.109	666.703	4.373	4.644	29.181
8	117.261	736.775	1.379	1.617	10.160

TRANS

R# 3

#A 325



FM4 BLADE 19. ACC. POS. #1. 3/82

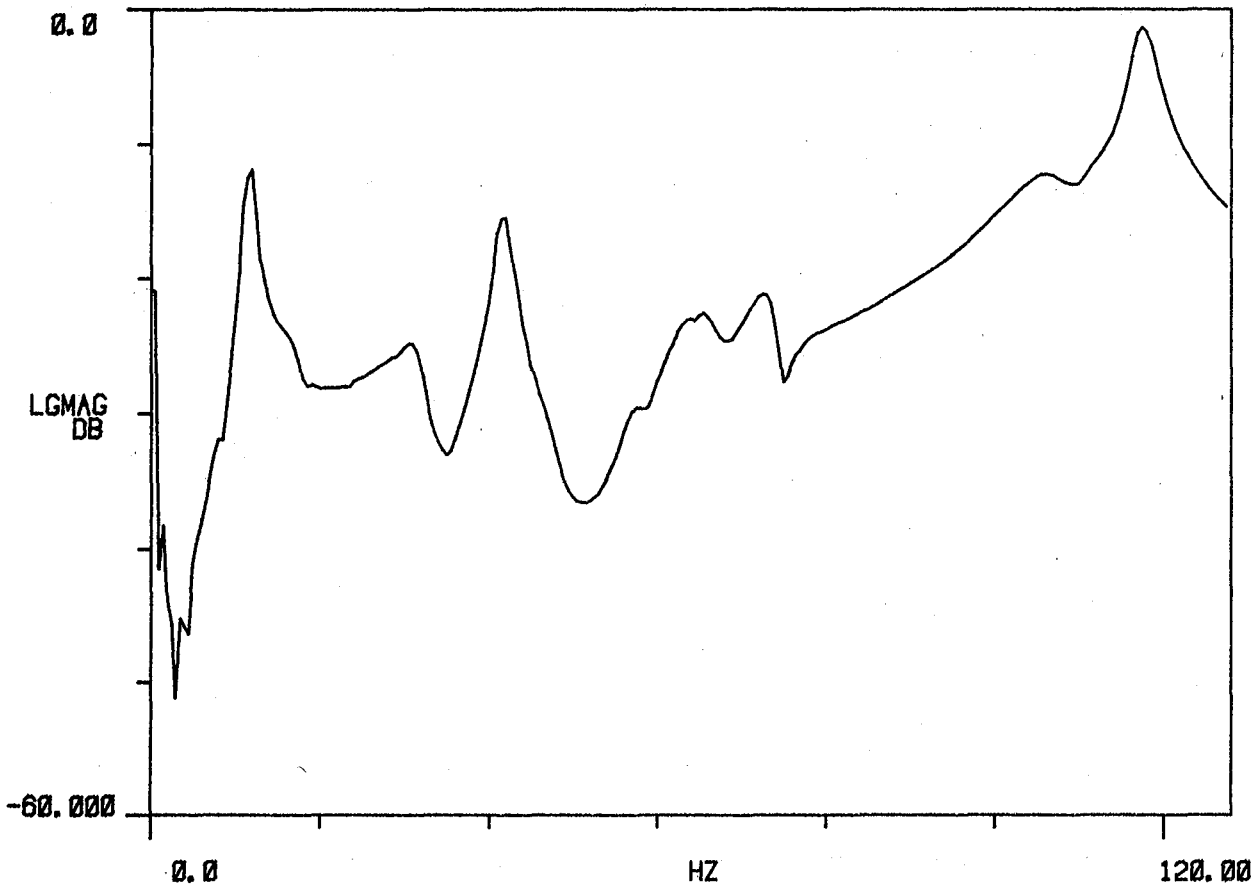
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.480	72.133	3.971	456.257	2.867
2	31.675	199.021	6.245	1.982	12.454
3	41.653	261.716	2.245	935.513	5.878
4	64.091	402.698	5.650	3.627	22.790
5	73.085	459.207	2.003	1.464	9.201
6	0.000	0.000	0.000	0.000	0.000
7	104.162	654.471	3.284	3.422	21.503
8	117.539	738.520	1.313	1.544	9.699

TRANS

R# 4

#A 325



FM4 BLADE 19. ACC. POS. #2. 3/82

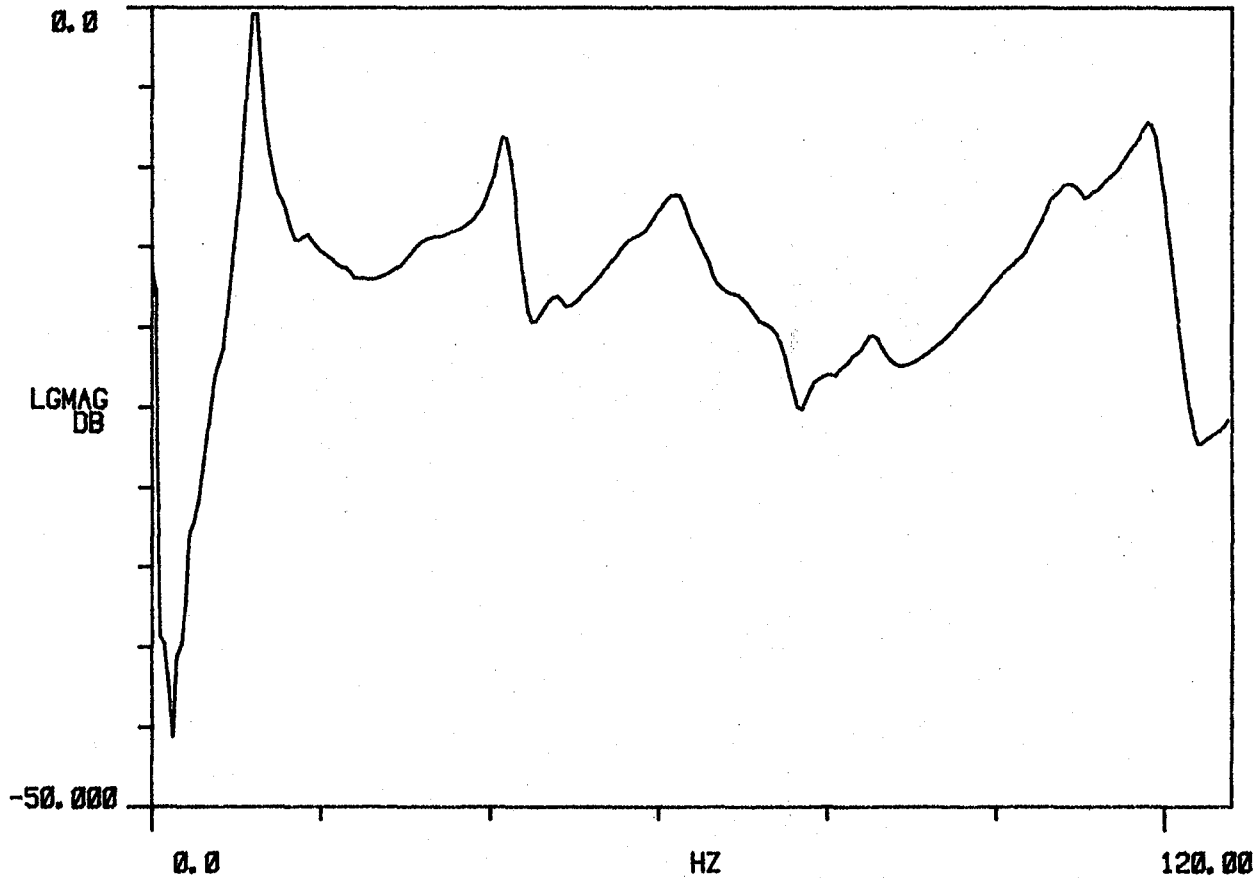
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.952	75.097	4.058	485.447	3.050
2	29.767	187.030	14.316	4.306	27.054
3	42.153	264.852	2.455	1.035	6.505
4	62.231	391.010	4.649	2.896	18.198
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	108.092	679.159	3.582	3.875	24.346
8	118.722	745.953	1.590	1.888	11.864

TRANS

R# 23

#A 325



FM4 BLADE 20. ACC. POS. #1. 3/82

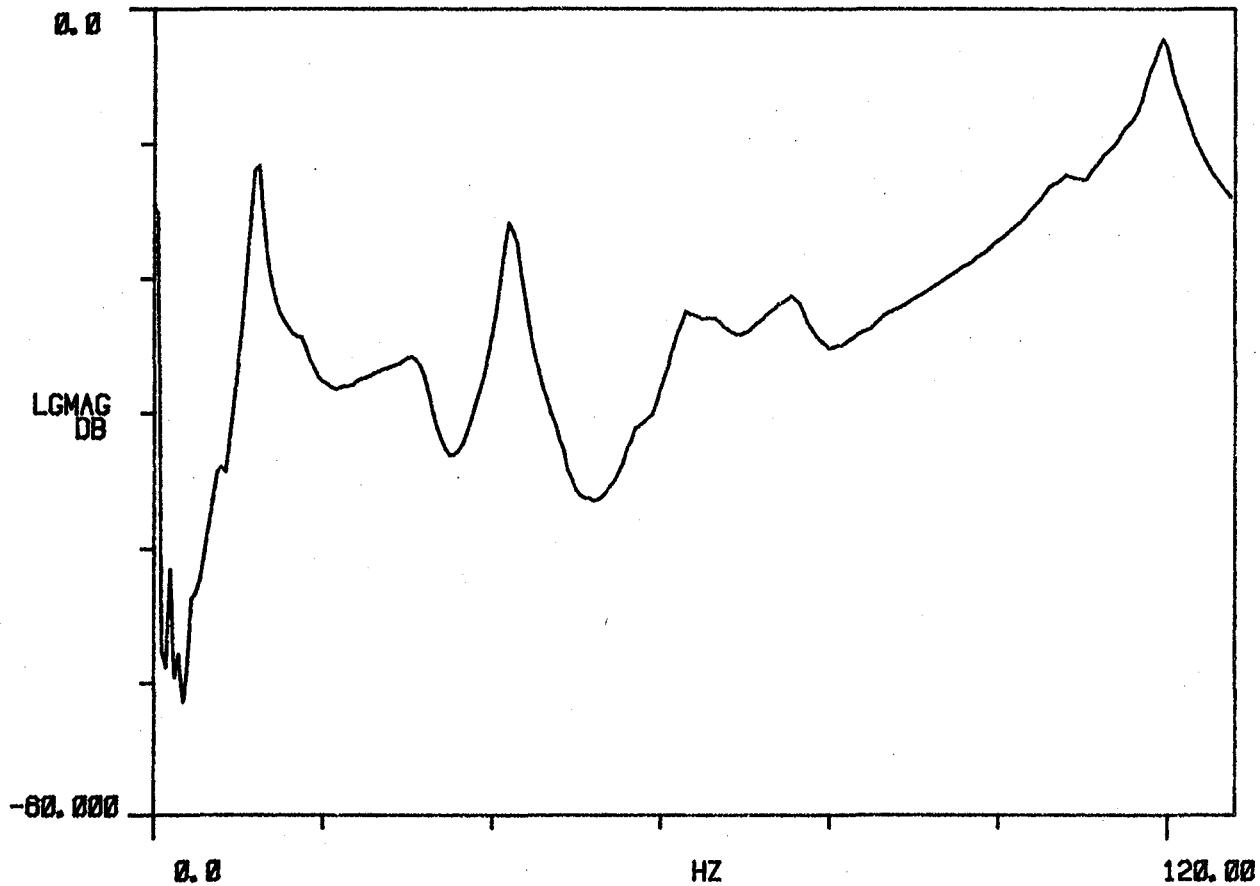
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.980	75.271	3.829	459.031	2.884
2	31.725	199.336	7.795	2.481	15.585
3	42.248	265.450	2.253	952.290	5.983
4	62.543	392.971	5.648	3.538	22.229
5	0.000	0.000	0.000	0.000	0.000
6	75.631	475.206	3.734	2.826	17.756
7	105.701	664.142	2.486	2.629	16.518
8	119.383	750.104	1.570	1.875	11.778

TRANS

R# 24

#A 325



FM4 BLADE 20. ACC. POS. #2. 3/82

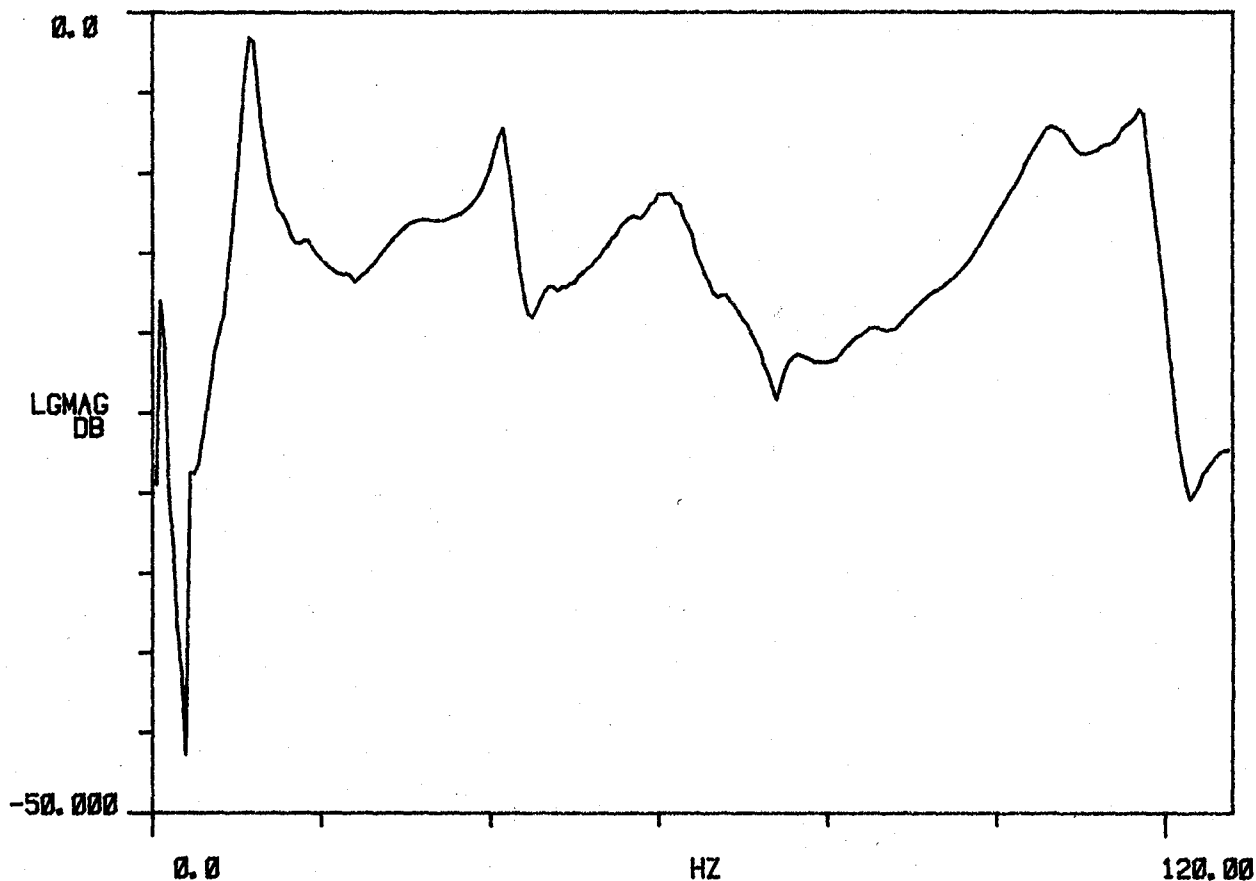
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.433	71.834	5.344	611.800	3.844
2	28.437	178.677	18.410	5.326	33.466
3	41.752	262.333	2.552	1.066	6.696
4	61.670	387.484	5.157	3.185	20.011
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	106.326	668.065	3.728	3.966	24.921
8	117.375	737.491	1.627	1.910	12.000

TRANS

R# 20

#A 325



FM4 BLADE 21. ACC. POS. #1. 3/82

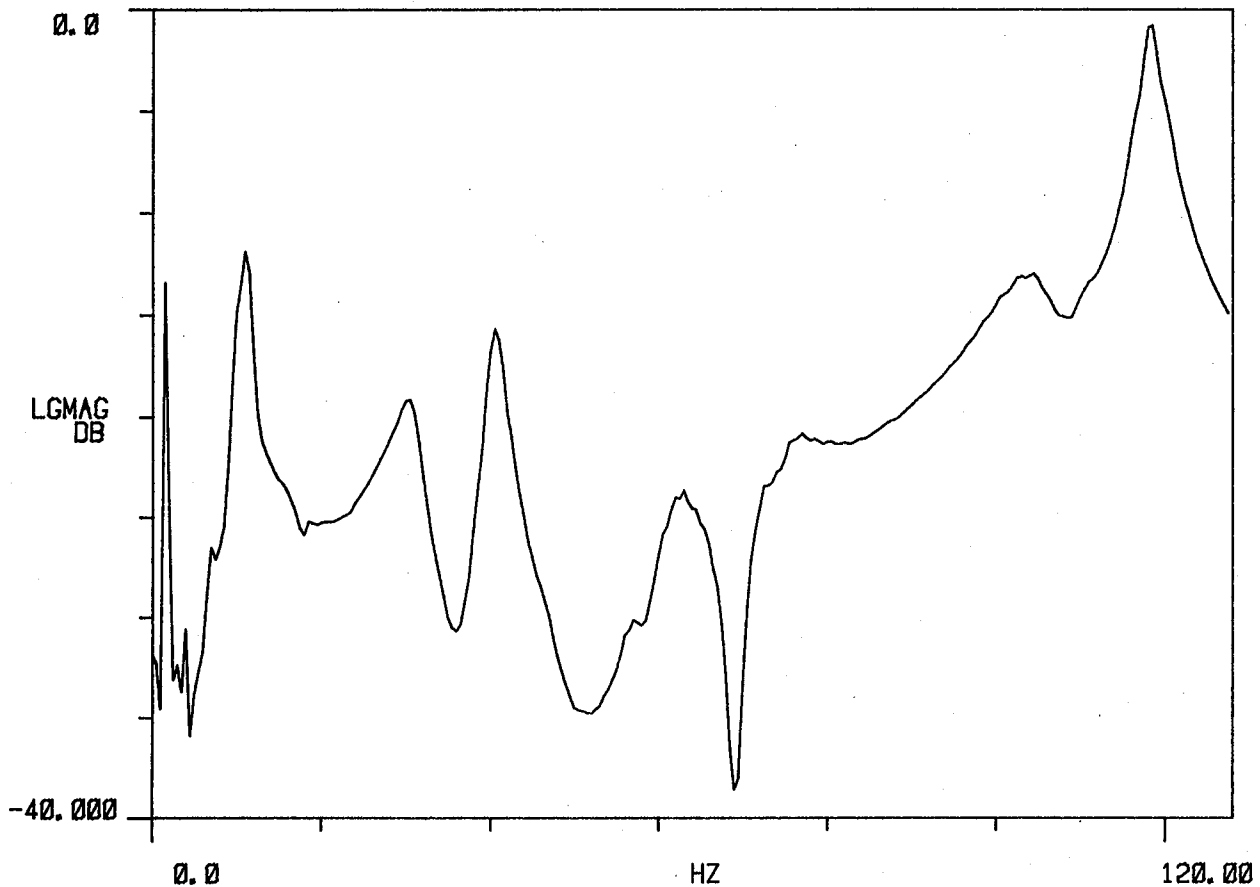
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.723	67.376	5.958	640.070	4.022
2	30.638	192.505	6.409	1.968	12.364
3	40.531	254.666	2.607	1.057	6.641
4	62.954	395.549	4.786	3.016	18.953
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	103.160	648.174	4.224	4.361	27.403
8	118.301	743.307	1.293	1.529	9.609

TRANS

R#: 19

#A: 325



FM4 BLADE 23. ACC. POS. #2. 03/82

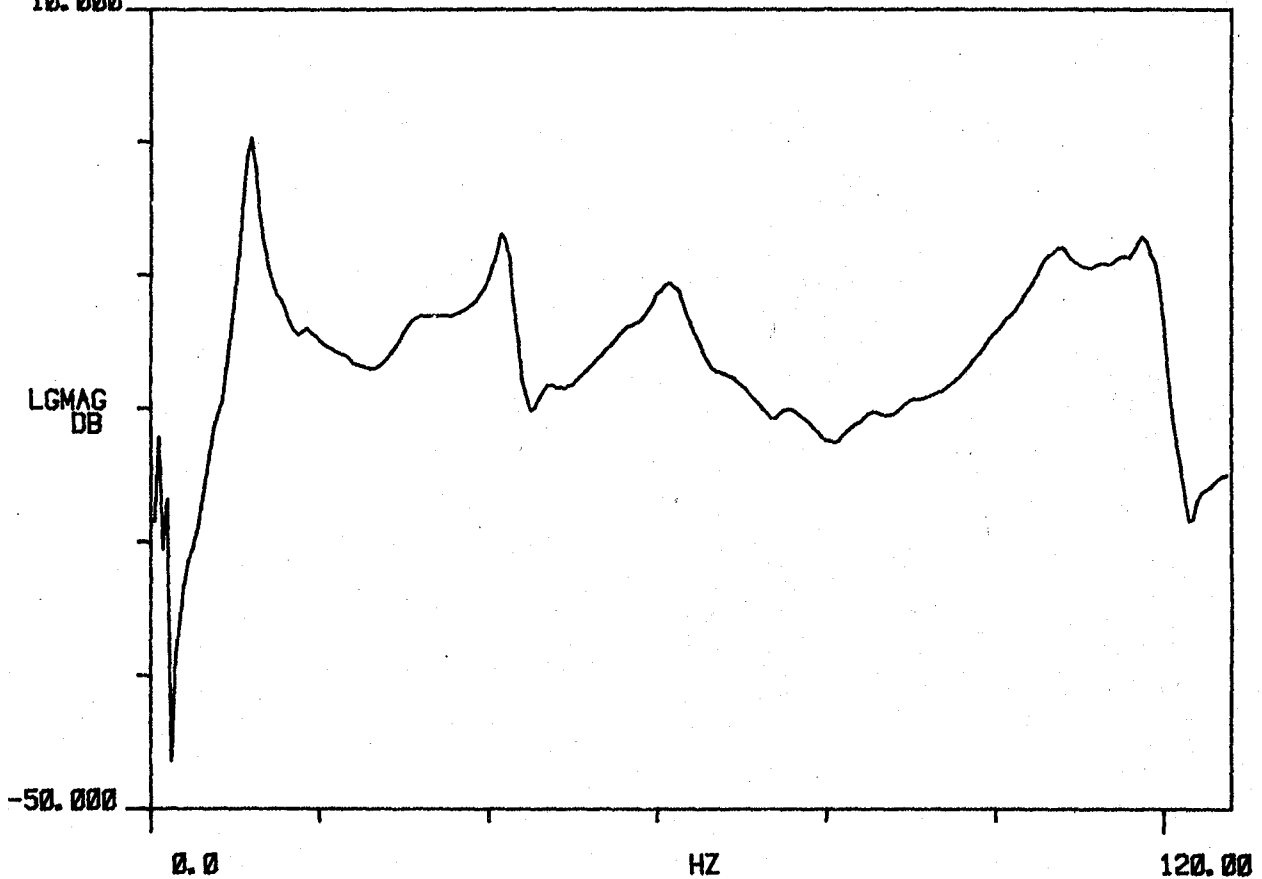
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.653	73.216	4.555	531.332	3.338
2	29.952	188.197	12.087	3.647	22.916
3	42.112	264.594	2.197	925.588	5.816
4	61.845	388.581	4.025	2.491	15.653
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	107.094	672.890	3.315	3.552	22.320
8	118.665	745.594	1.658	1.968	12.365

TRANS
10.000

R# 15

#A 325



FM4 BLADE 22. ACC. POS. #1. 3/82

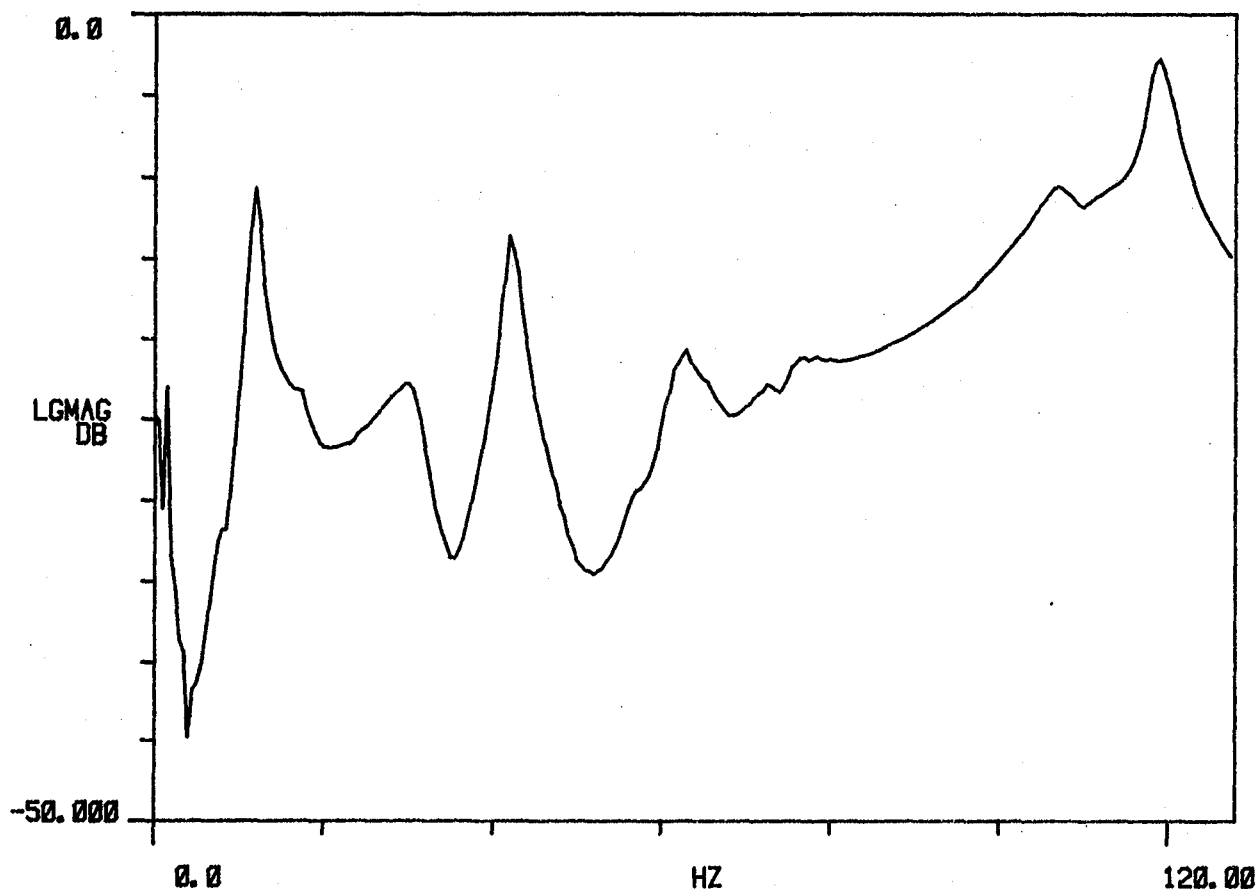
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.683	73.405	4.325	505.738	3.178
2	30.616	192.366	7.674	2.357	14.807
3	42.130	264.712	2.071	872.635	5.483
4	62.034	389.770	4.064	2.523	15.852
5	0.000	0.000	0.000	0.000	0.000
6	74.561	468.480	3.578	2.670	16.773
7	105.889	665.321	2.669	2.827	17.764
8	119.049	748.005	1.352	1.610	10.113

TRANS

R# 16

#A 325



FM4 BLADE 22. ACC. POS. #2. 3/82

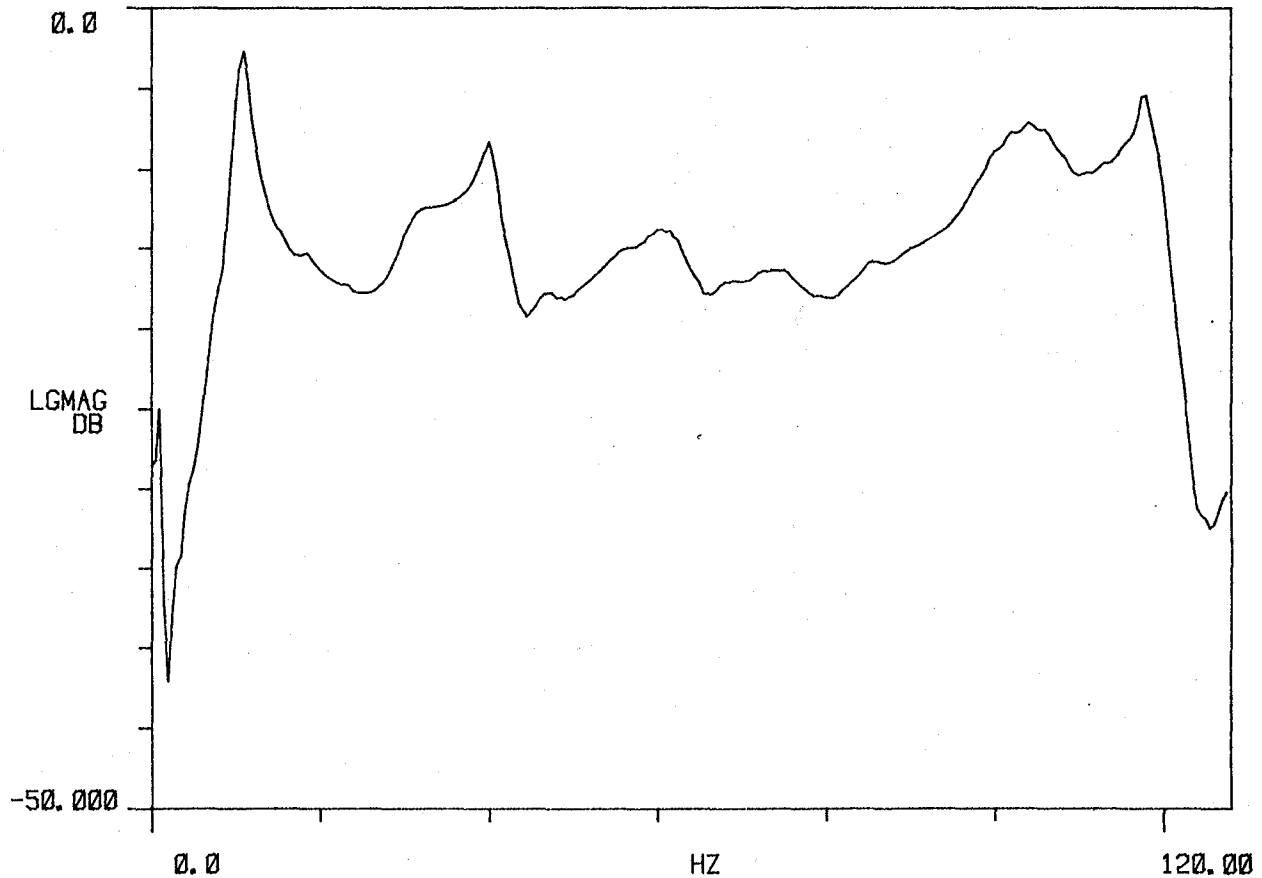
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.607	66.645	6.291	668.631	4.201
2	29.484	185.256	12.175	3.617	22.723
3	40.451	254.158	3.349	1.355	8.515
4	61.761	388.057	4.607	2.848	17.895
5	0.000	0.000	0.000	0.000	0.000
6	75.913	476.975	2.716	2.062	12.959
7	103.818	652.308	5.325	5.537	34.788
8	118.439	744.173	1.363	1.615	10.146

TRANS

R#: 17

#A: 325



FM4 BLADE 23. ACC. POS. #1. 03/82

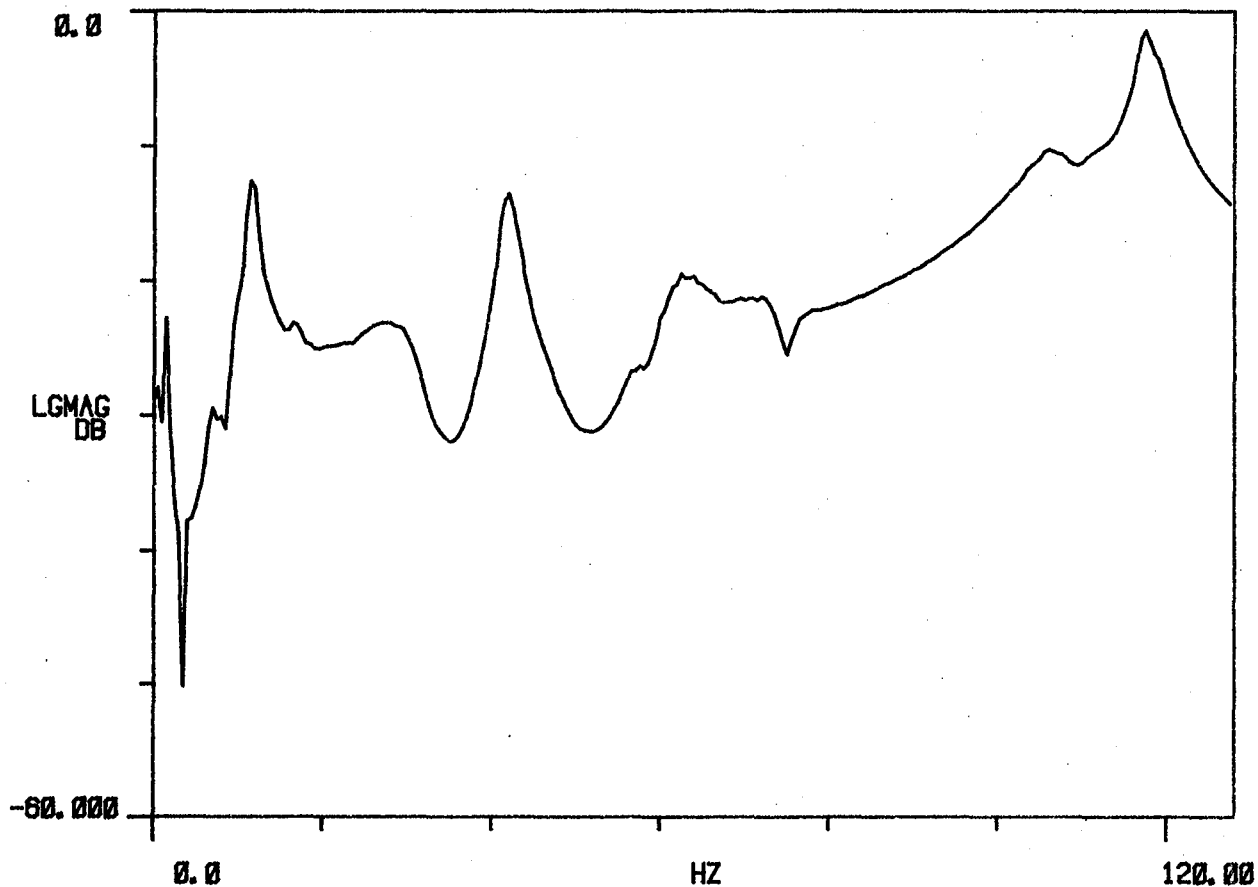
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.340	71.254	4.015	455.698	2.863
2	29.314	184.185	13.211	3.907	24.549
3	41.839	262.883	2.320	970.982	6.101
4	61.836	388.530	5.716	3.541	22.246
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	105.134	660.579	3.081	3.241	20.362
8	117.772	739.985	1.468	1.729	10.861

TRANS

R# 21

#A 325



FM4 BLADE 21. ACC. POS. #2. 3/82

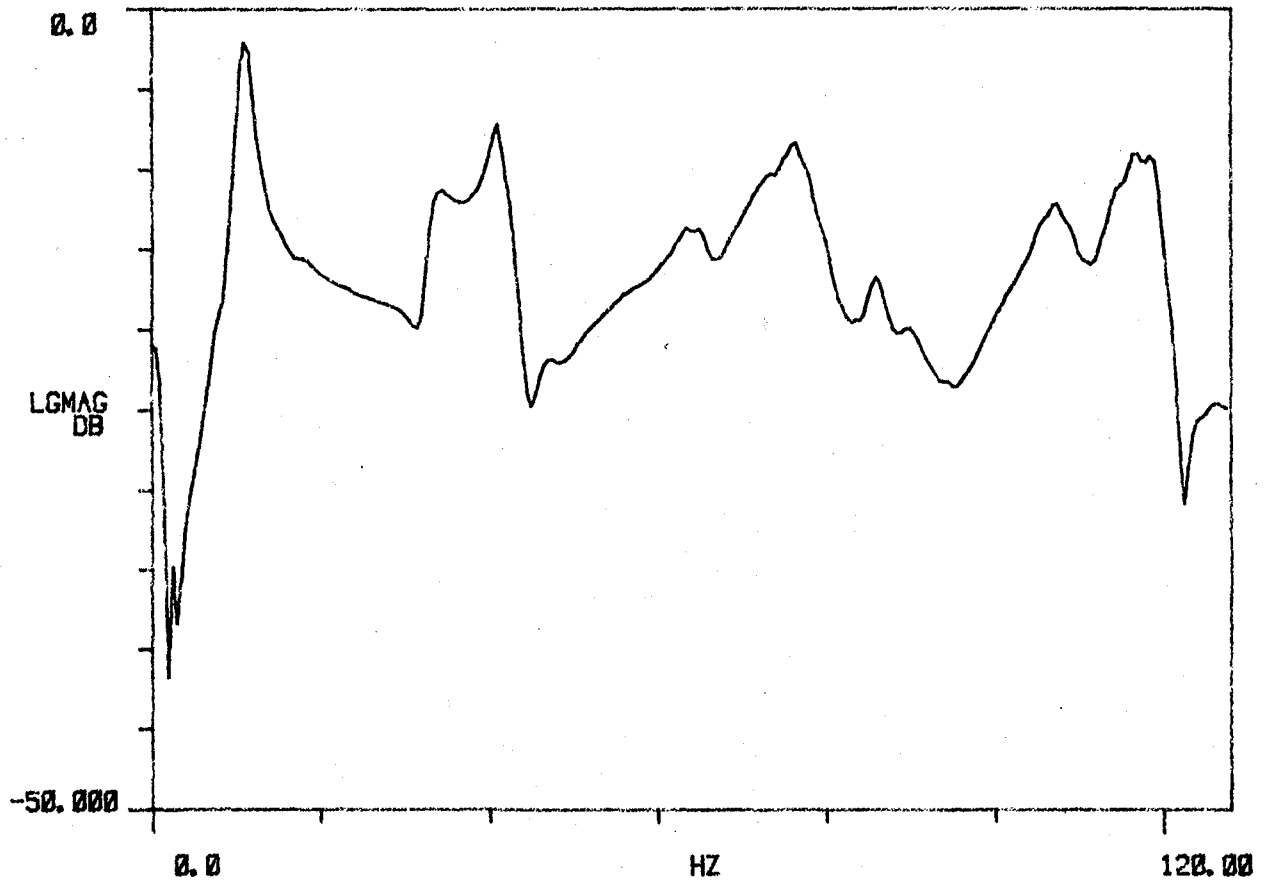
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.871	68.305	4.636	504.519	3.170
2	32.904	206.741	4.173	1.374	8.635
3	41.412	260.198	2.893	1.199	7.531
4	64.258	403.745	2.010	1.292	8.117
5	0.000	0.000	0.000	0.000	0.000
6	77.025	483.960	3.350	2.582	16.221
7	107.102	672.942	2.431	2.604	16.362
8	118.218	742.784	1.756	2.077	13.047

TRANS

R# 1

#A 325



FM4 BLADE 23. ACC. POS. #1. 03/82

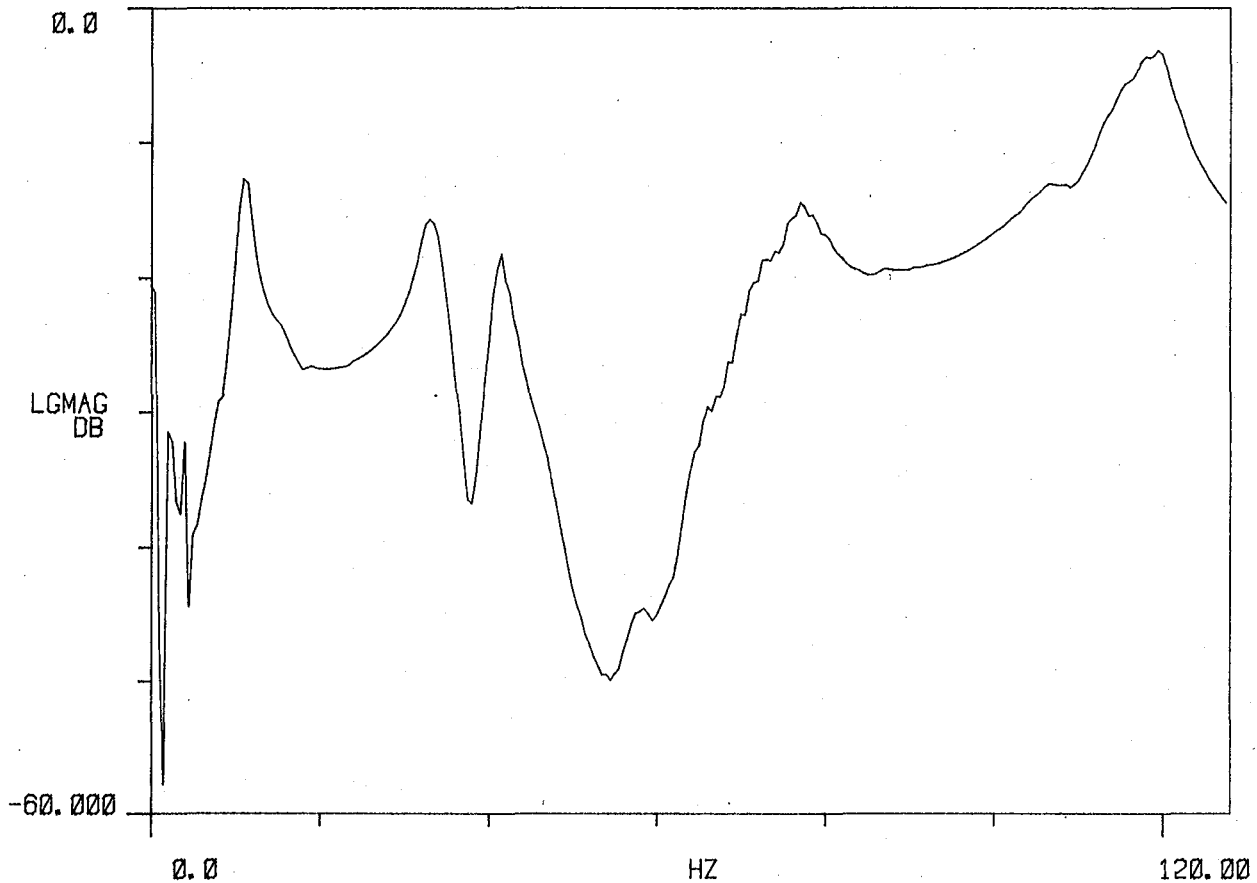
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.880	68.363	4.761	518.578	3.258
2	33.306	209.269	3.723	1.241	7.797
3	41.358	259.859	2.246	929.212	5.838
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	76.542	480.929	3.589	2.749	17.274
7	104.167	654.501	2.519	2.625	16.494
8	118.901	747.076	2.469	2.937	18.454

TRANS

R#: 2

#A: 325



FM4 BLADE 23. ACC. POS. #2. 03/82

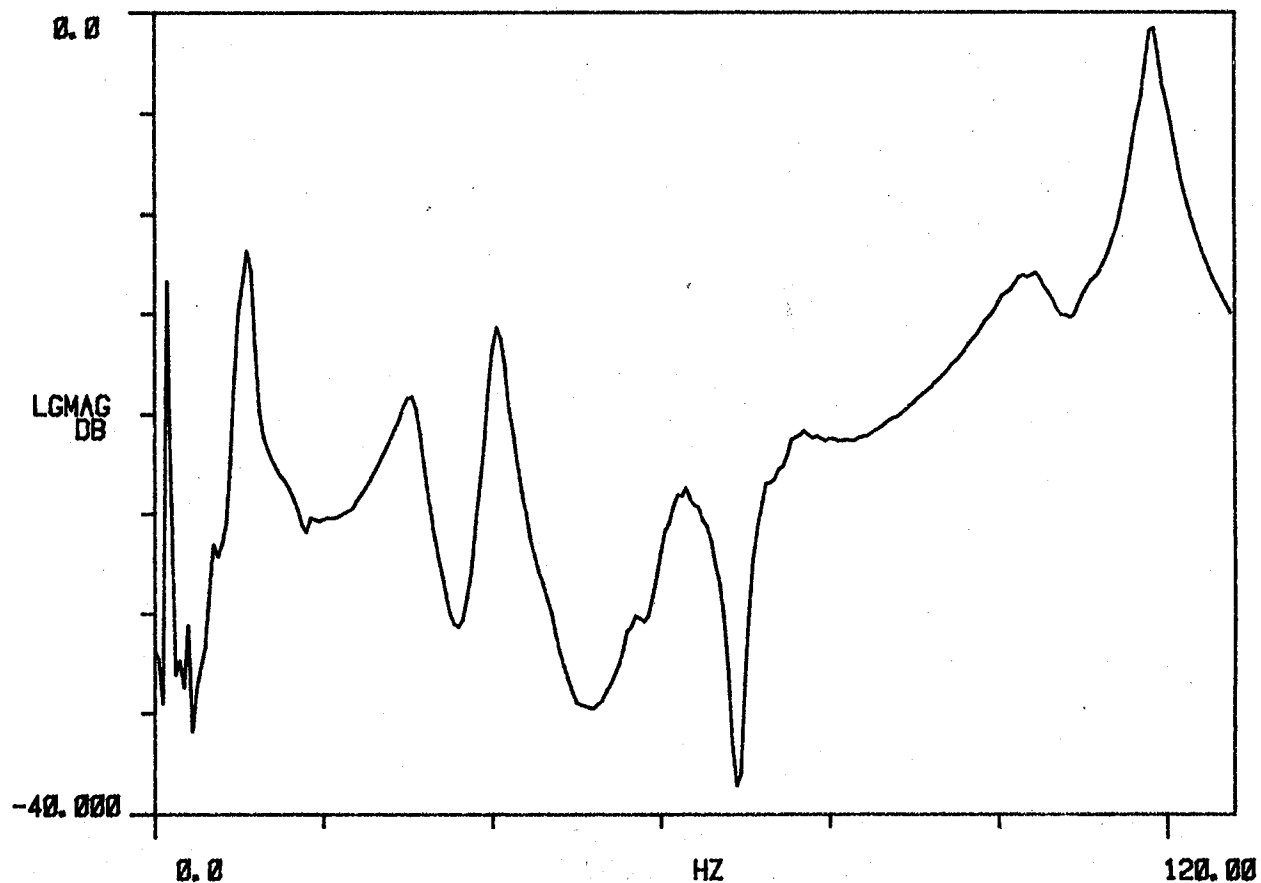
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	10.723	67.376	5.958	640.070	4.022
2	30.638	192.505	6.409	1.968	12.364
3	40.531	254.666	2.607	1.057	6.641
4	62.954	395.549	4.786	3.016	18.953
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	103.160	648.174	4.224	4.361	27.403
8	118.301	743.307	1.293	1.529	9.609

TRANS

R# 19

#A 325



FM4 BLADE 23. ACC. POS. #2. 3/82

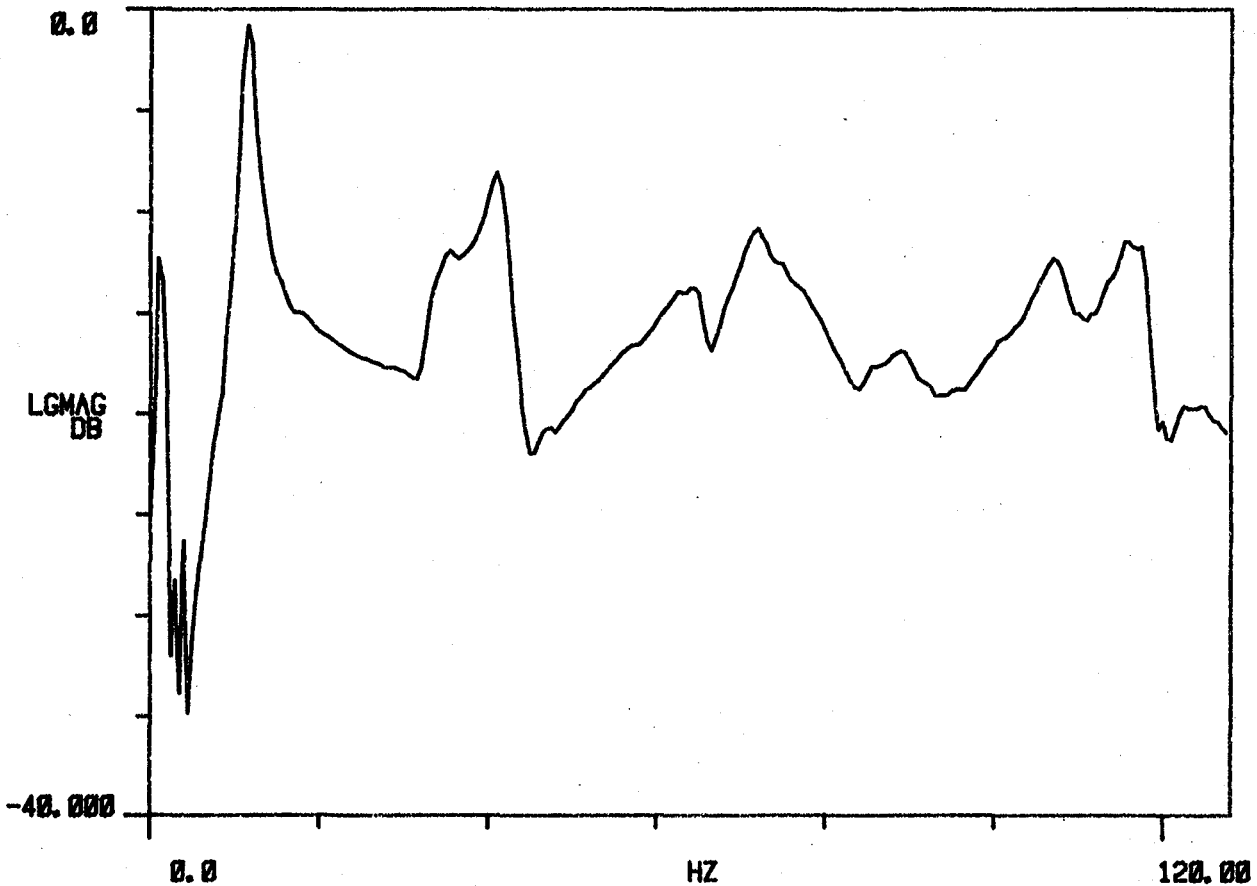
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	11.410	71.694	5.012	572.589	3.598
2	33.773	212.203	6.805	2.303	14.473
3	41.534	260.964	3.310	1.375	8.642
4	64.229	403.562	3.488	2.242	14.085
5	0.000	0.000	0.000	0.000	0.000
6	71.550	449.565	4.315	3.090	19.418
7	107.352	674.512	2.607	2.799	17.588
8	117.418	737.758	1.297	1.523	9.569

TRANS

R# 5

#A 325



FM6 BLADE 24. ACC. POS. #1. 3/82

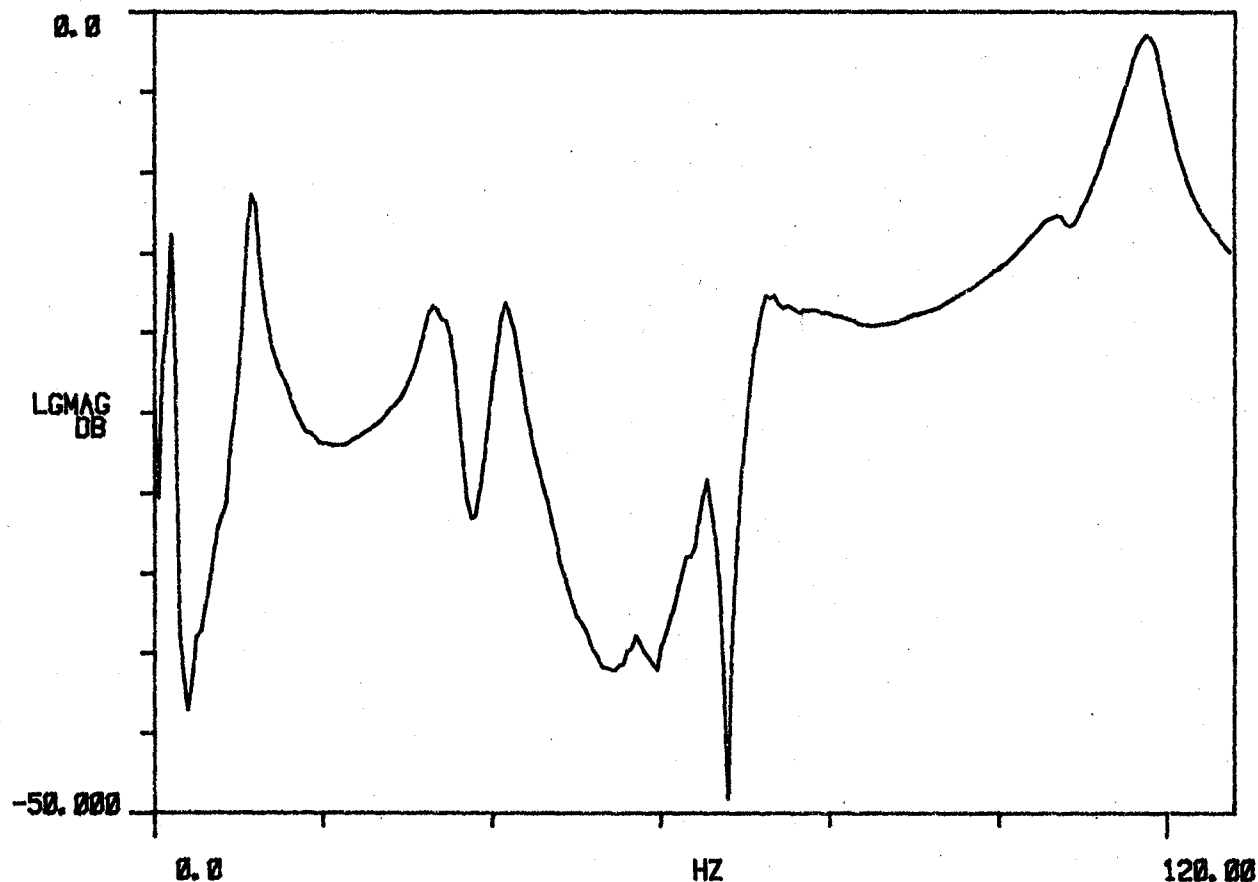
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.438	71.865	4.974	589.559	3.579
2	33.764	212.144	5.440	1.839	11.558
3	41.629	261.584	2.877	1.198	7.527
4	65.709	412.659	1.500	985.927	6.195
5	0.000	0.000	0.000	0.000	0.000
6	71.479	449.116	4.607	3.297	20.713
7	105.534	663.089	2.951	3.115	19.574
8	117.518	738.387	1.738	2.044	12.845

TRANS

R# 6

#A 325



FM6 BLADE 24. ACC. POS. #2. 3/82

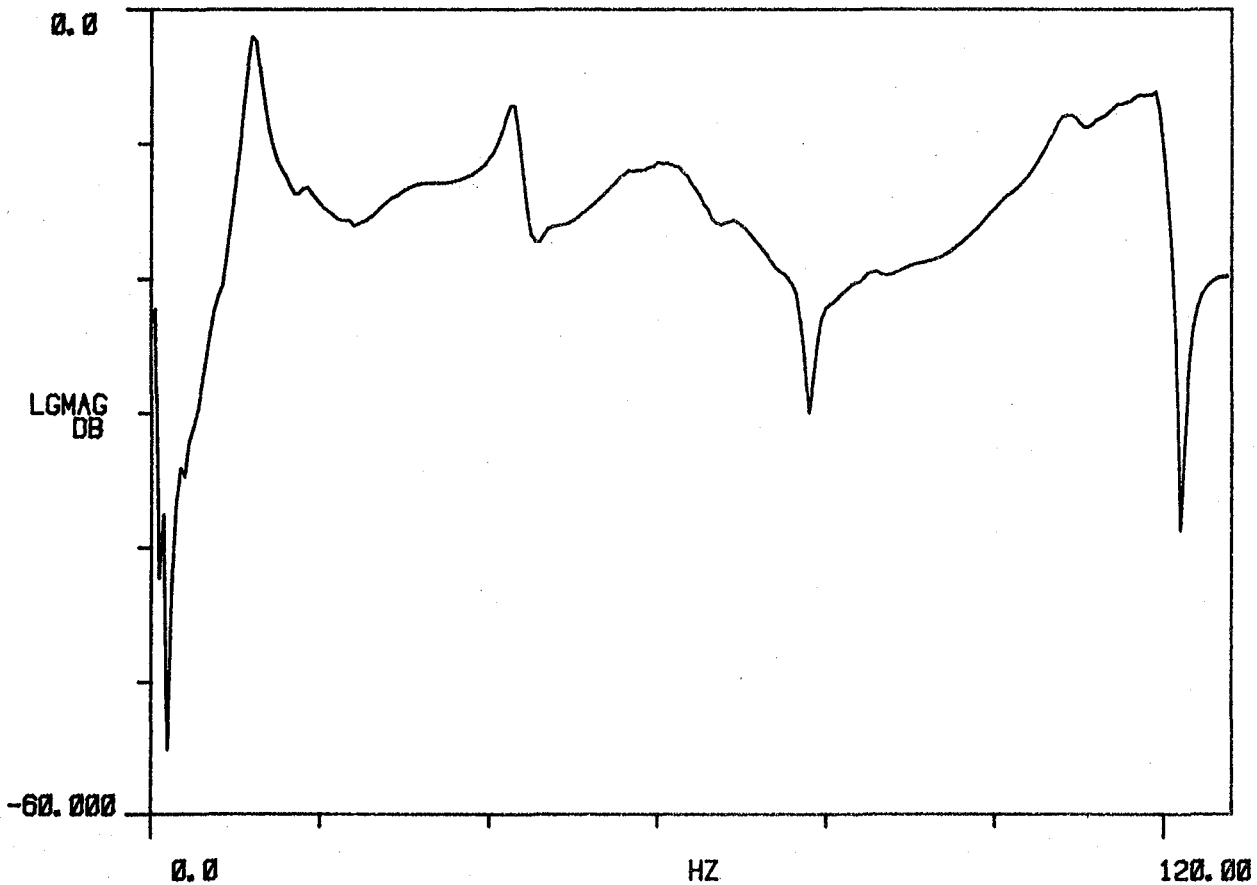
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.966	75.187	6.037	723.709	4.547
2	0.000	0.000	0.000	0.000	0.000
3	43.057	270.532	2.291	986.482	6.198
4	61.837	388.531	9.999	6.214	39.046
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	108.473	681.557	2.773	3.009	18.909
8	119.363	749.982	1.954	2.333	14.661

TRANS

R# 13

#A 325



FM4 BLADE 25. ACC. POS. #1. 3/82

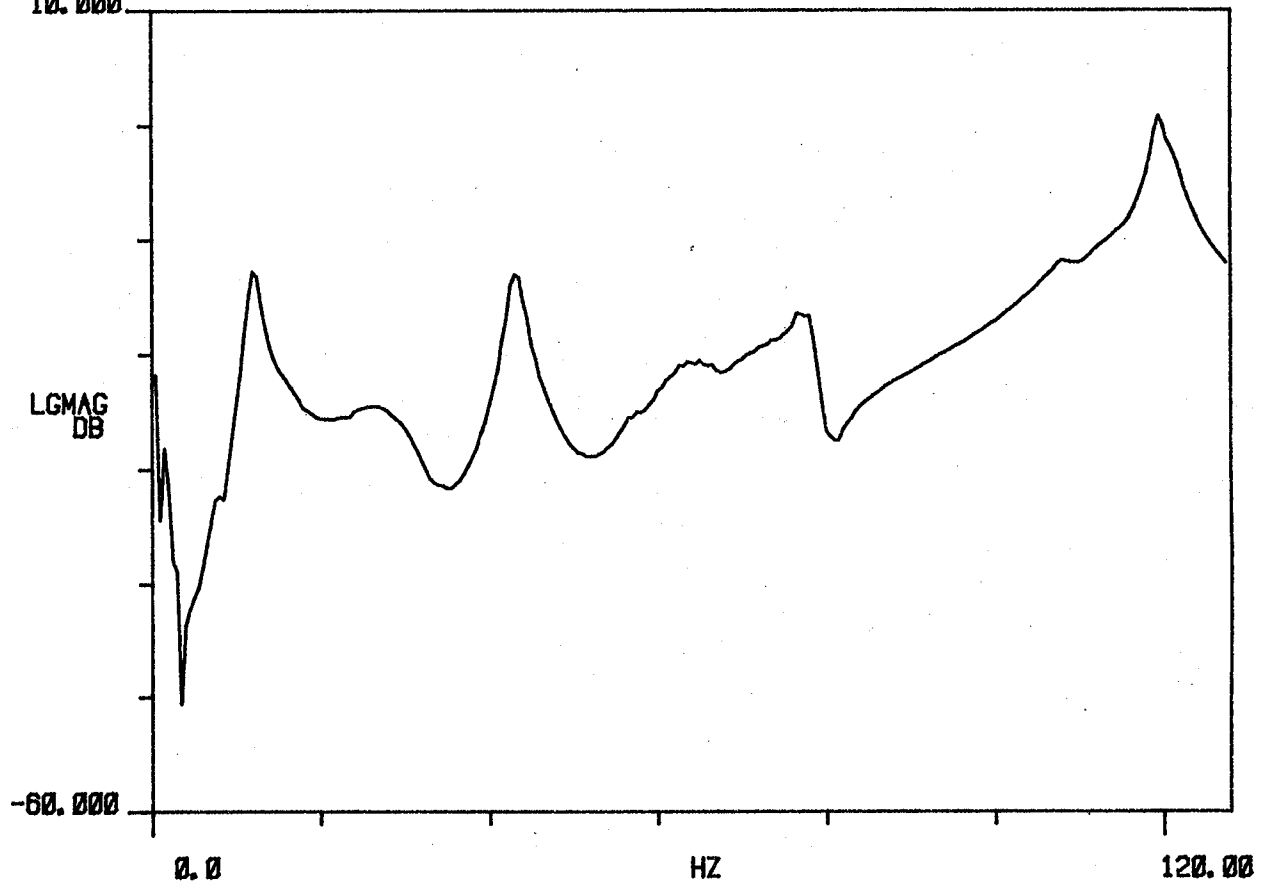
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.926	74.936	6.204	741.311	4.658
2	28.011	175.998	17.582	5.003	31.433
3	43.060	270.557	2.259	972.835	6.113
4	62.505	392.728	8.392	5.264	33.073
5	0.000	0.000	0.000	0.000	0.000
6	78.167	491.139	2.353	1.840	11.558
7	106.093	666.599	3.319	3.523	22.137
8	119.762	752.489	1.228	1.470	9.239

TRANS
10.000

R# 14

#A 325



FM4 BLADE 25. ACC. POS. #2. 3/82

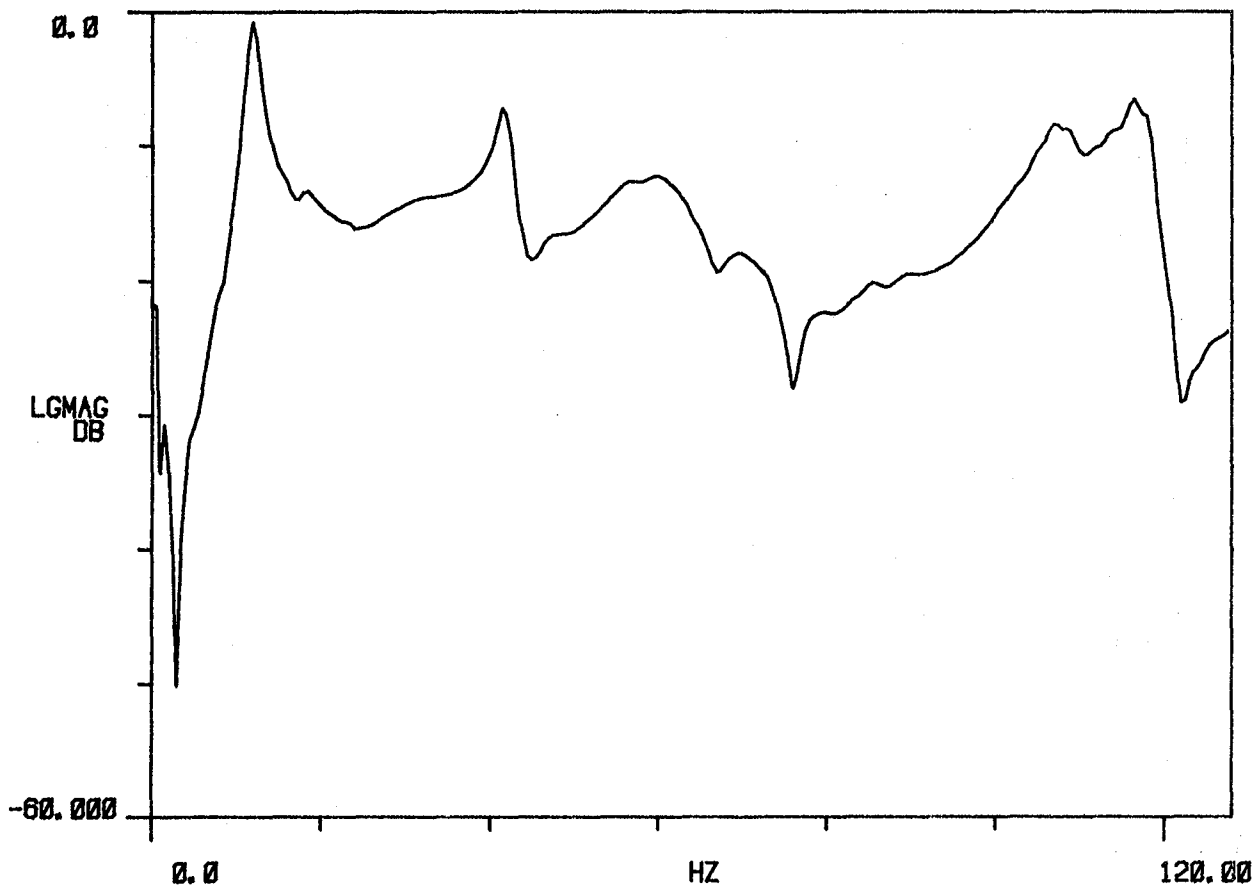
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.807	74.183	5.426	641.528	4.031
2	0.000	0.000	0.000	0.000	0.000
3	42.055	264.241	2.165	910.863	5.723
4	60.604	380.787	9.548	5.813	36.523
5	73.021	458.803	2.132	1.557	9.784
6	0.000	0.000	0.000	0.000	0.000
7	107.393	674.769	2.894	3.109	19.535
8	117.698	739.518	1.449	1.706	10.719

TRANS

R# 11

#A 325



FM4 BLADE 26. ACC. POS. #1. 3/82

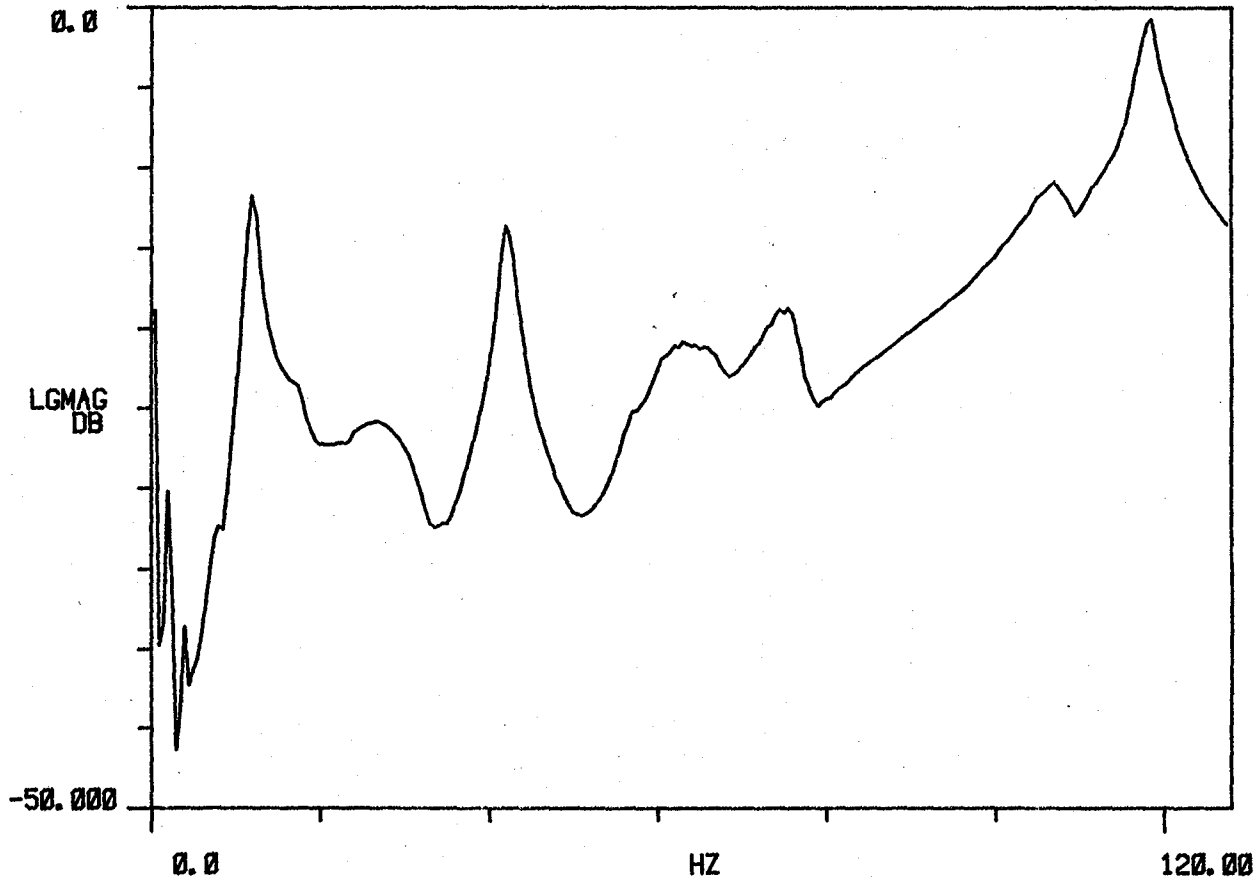
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.828	74.315	5.243	620.958	3.902
2	28.484	178.971	14.986	4.317	27.126
3	42.120	264.646	2.044	861.178	5.411
4	61.986	389.468	8.372	5.207	32.720
5	0.000	0.000	0.000	0.000	0.000
6	75.565	474.791	2.825	2.136	13.418
7	106.427	668.703	3.177	3.383	21.253
8	118.049	741.724	1.283	1.515	9.520

TRANS

R# 12

#A 325



FM4 BLADE 26. ACC. POS. #2. 3/82

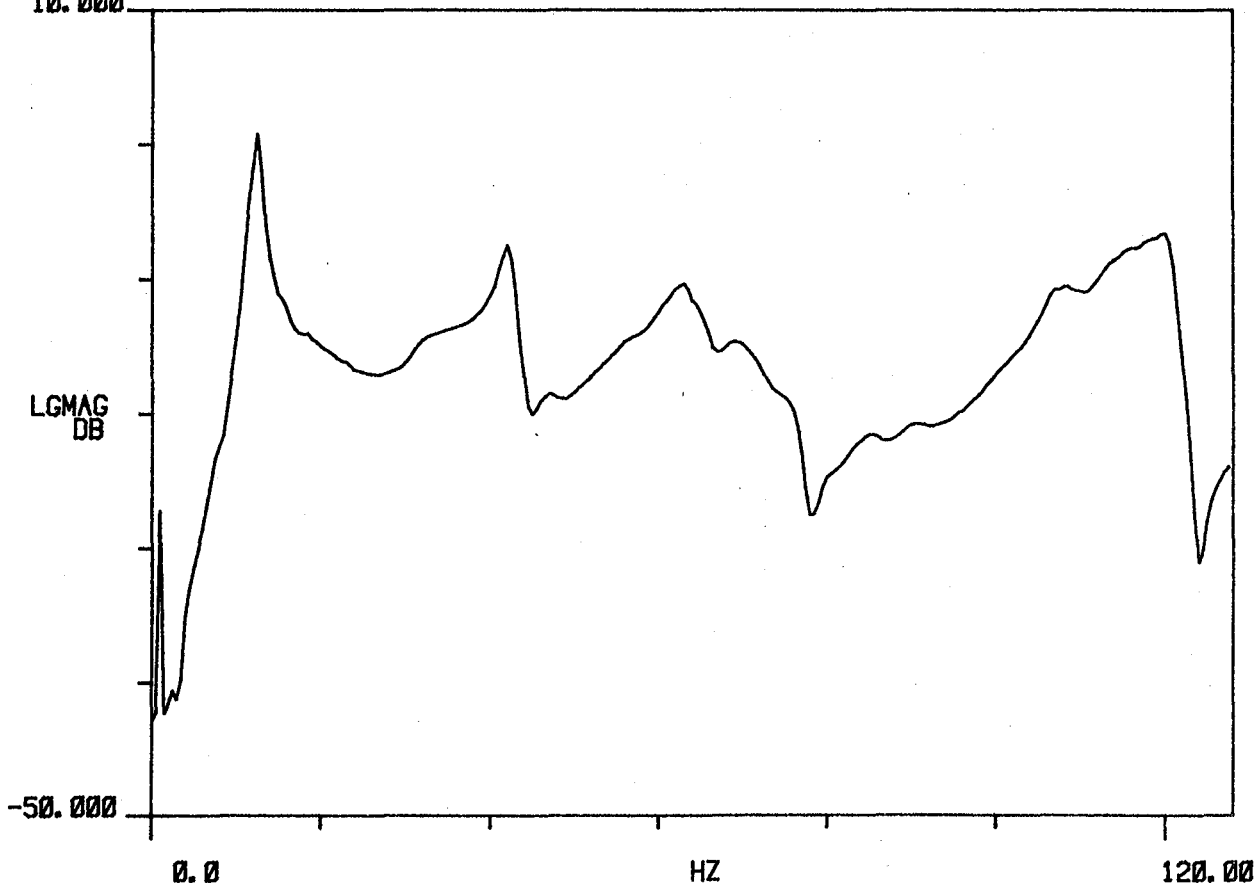
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.207	76.700	3.622	442.423	2.780
2	0.000	0.000	0.000	0.000	0.000
3	42.336	266.004	2.212	936.804	5.886
4	63.055	396.186	4.375	2.761	17.351
5	71.375	448.465	3.220	2.300	14.448
6	0.000	0.000	0.000	0.000	0.000
7	106.901	671.679	3.335	3.567	22.410
8	120.323	756.012	2.106	2.535	15.927

TRANS
10.000

R# 7

#A 325



FM4 BLADE 28. ACC. POS. #1. 3/82

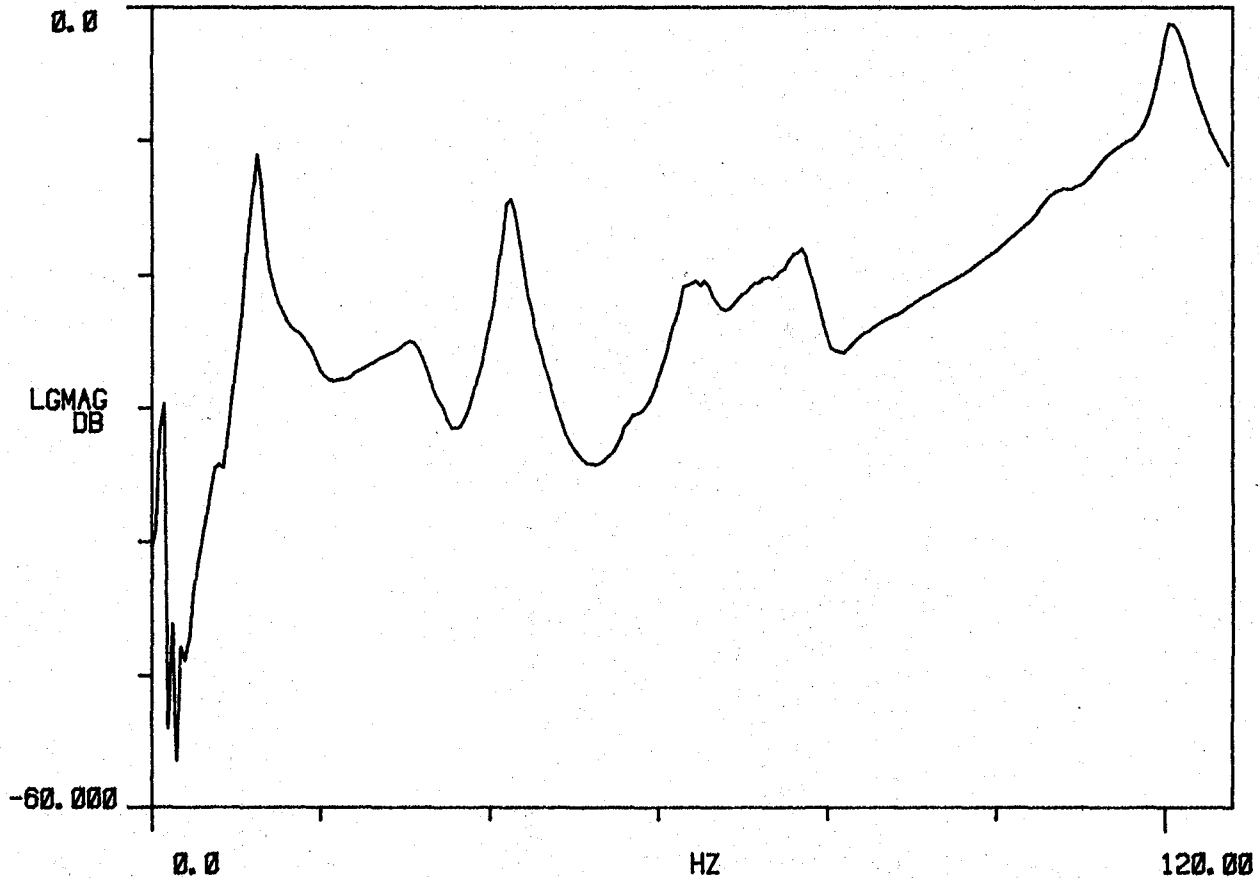
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.232	76.857	3.686	451.172	2.835
2	31.526	198.081	8.927	2.826	17.753
3	42.393	266.361	2.173	921.472	5.790
4	63.576	399.459	4.303	2.738	17.203
5	0.000	0.000	0.000	0.000	0.000
6	77.349	486.000	2.622	2.029	12.749
7	103.781	652.072	3.191	3.313	20.816
8	120.972	760.090	1.272	1.539	9.670

TRANS

R# 8

#A 325



FM4 BLADE 28. ACC. POS. #2. 3/82

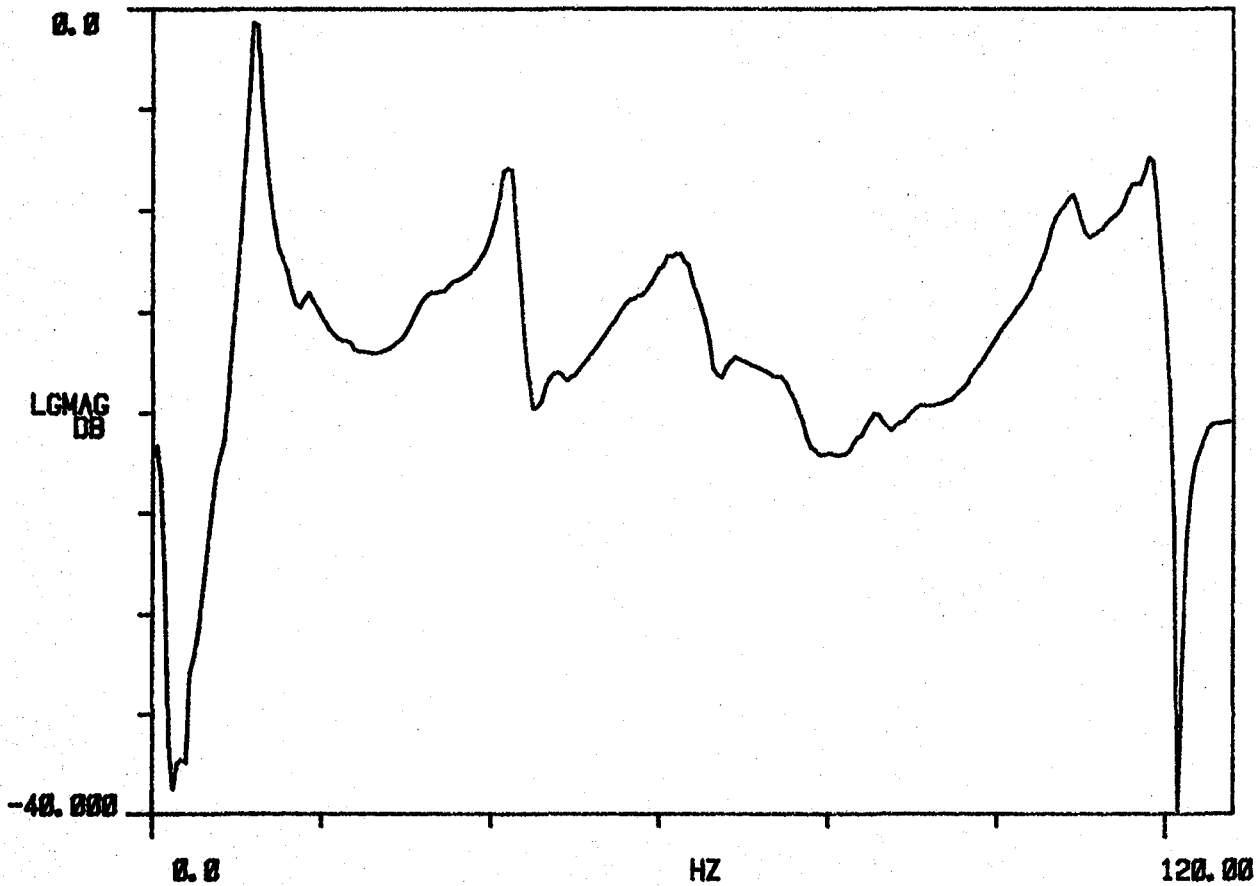
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.008	75.451	4.813	578.676	3.636
2	0.000	0.000	0.000	0.000	0.000
3	42.402	266.418	2.436	1.033	6.491
4	62.977	395.693	5.024	3.168	19.905
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	108.327	680.636	2.373	2.571	16.154
8	118.822	746.583	1.552	1.844	11.589

TRANS

R# 33

#A: 325



FM4 BLADE 29. ACC. POS. #1. 3/82

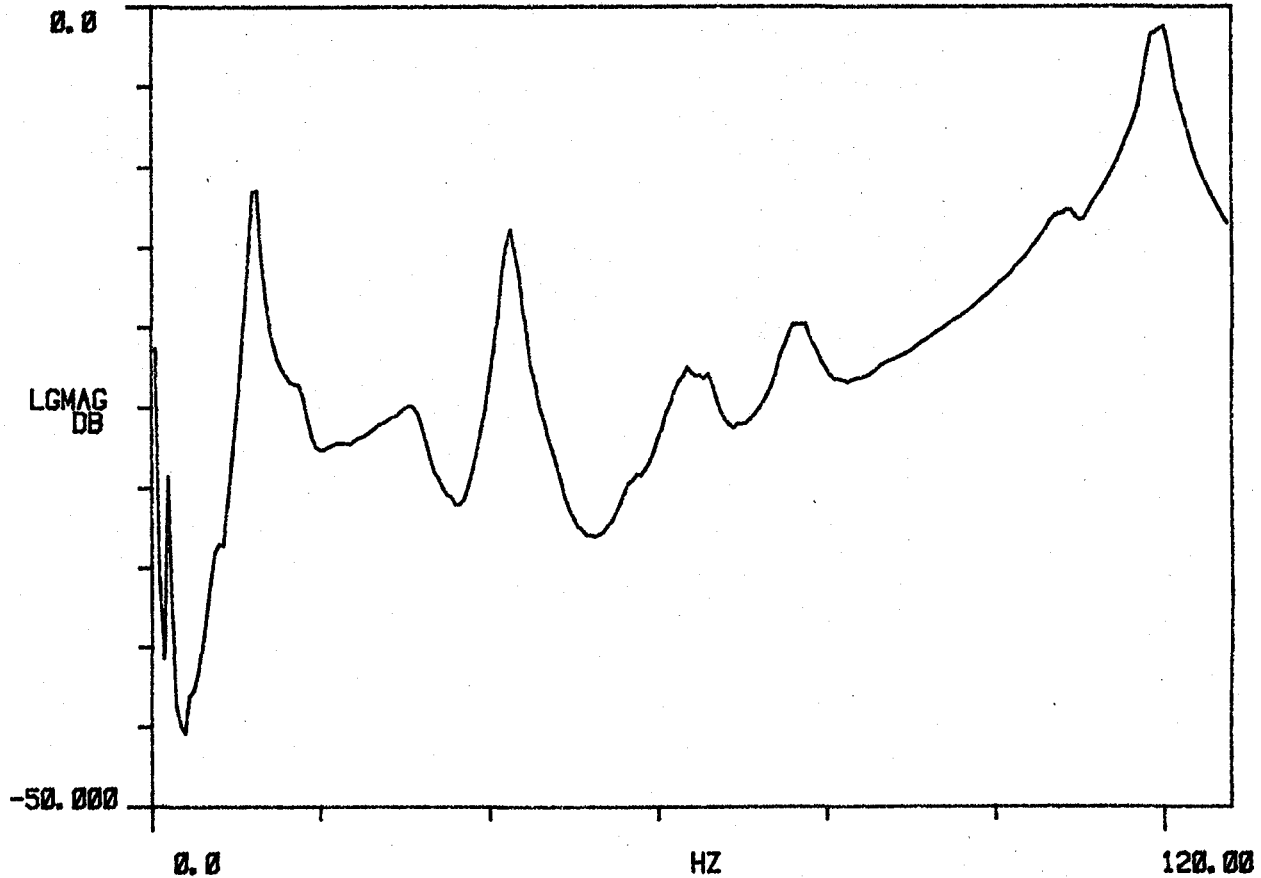
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.022	75.534	4.622	556.247	3.495
2	31.684	199.074	7.861	2.498	15.897
3	42.405	266.439	2.309	979.467	6.154
4	63.622	399.752	5.062	3.225	20.260
5	0.000	0.000	0.000	0.000	0.000
6	76.330	479.598	2.911	2.223	13.966
7	106.936	671.897	845.541	904.218	5.681
8	119.381	750.093	1.358	1.621	10.185

TRANS

R# 34

#A 325



FM4 BLADE 29. ACC. POS. #2. 3/82

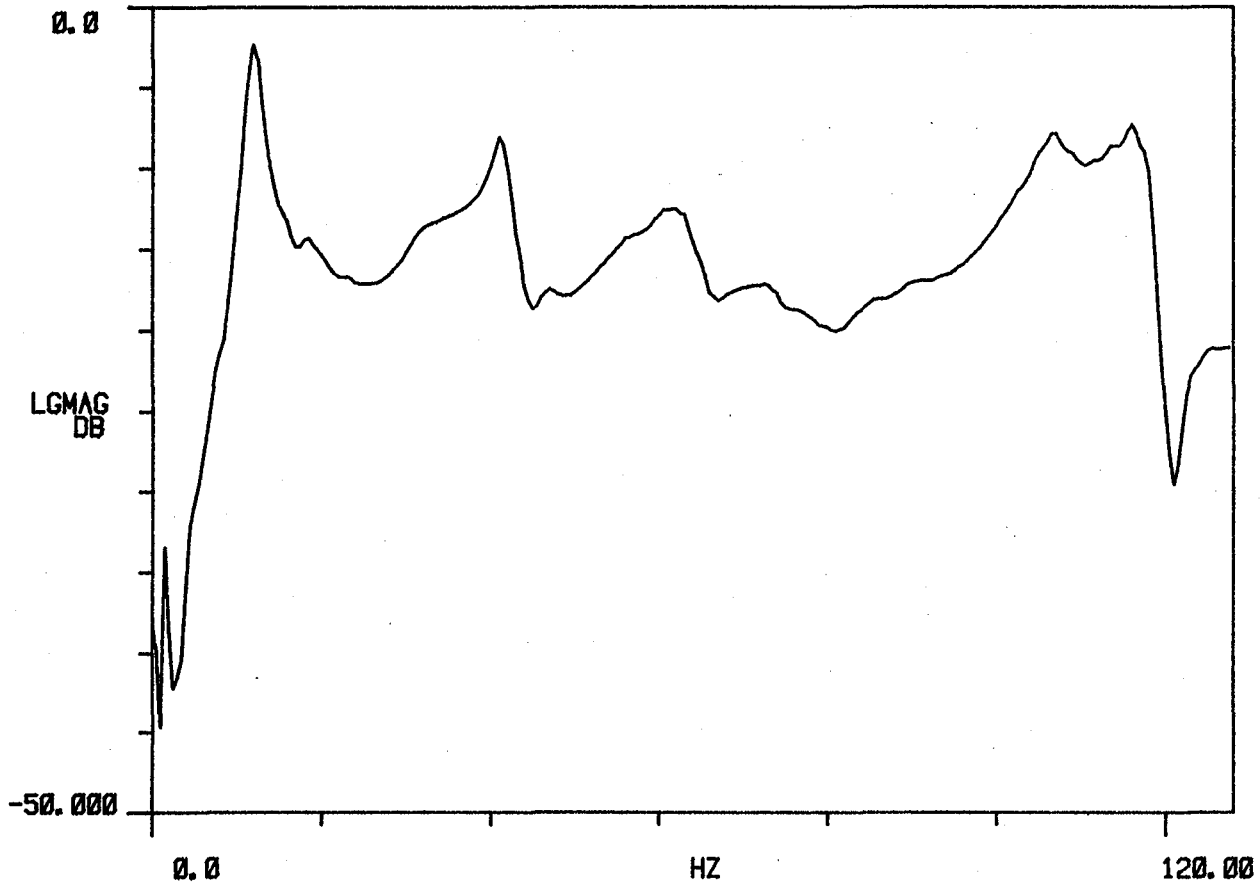
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	11.775	73.986	5.834	688.150	4.324
2	0.000	0.000	0.000	0.000	0.000
3	41.581	261.262	3.054	1.271	7.983
4	62.590	393.267	4.825	3.023	18.997
5	73.616	462.542	748.451	550.994	3.462
6	0.000	0.000	0.000	0.000	0.000
7	106.405	668.565	3.260	3.471	21.809
8	117.504	738.298	1.726	2.028	12.743

TRANS

R# 9

#A 325



FM4 BLADE 30. ACC. POS. #1. 3/82

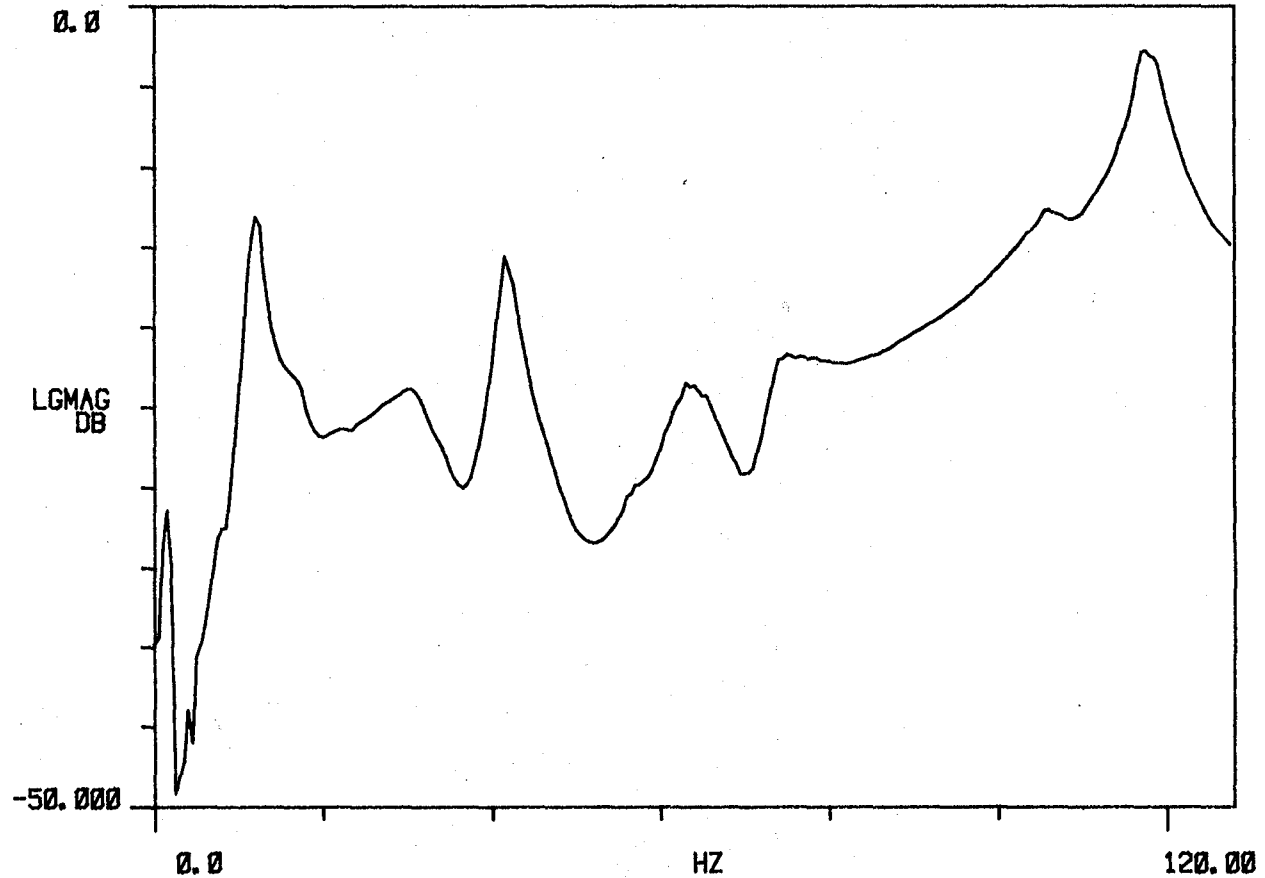
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.812	74.216	5.611	663.758	4.171
2	30.875	193.995	11.500	3.574	22.458
3	41.703	262.027	2.615	1.091	6.853
4	63.382	398.241	5.103	3.239	20.350
5	0.000	0.000	0.000	0.000	0.000
6	72.938	458.286	3.997	2.918	18.332
7	104.370	655.777	2.313	2.415	15.172
8	117.822	740.298	1.587	1.870	11.749

TRANS

R# 10

#A 325



FM4 BLADE 30. ACC. POS. #2. 3/82

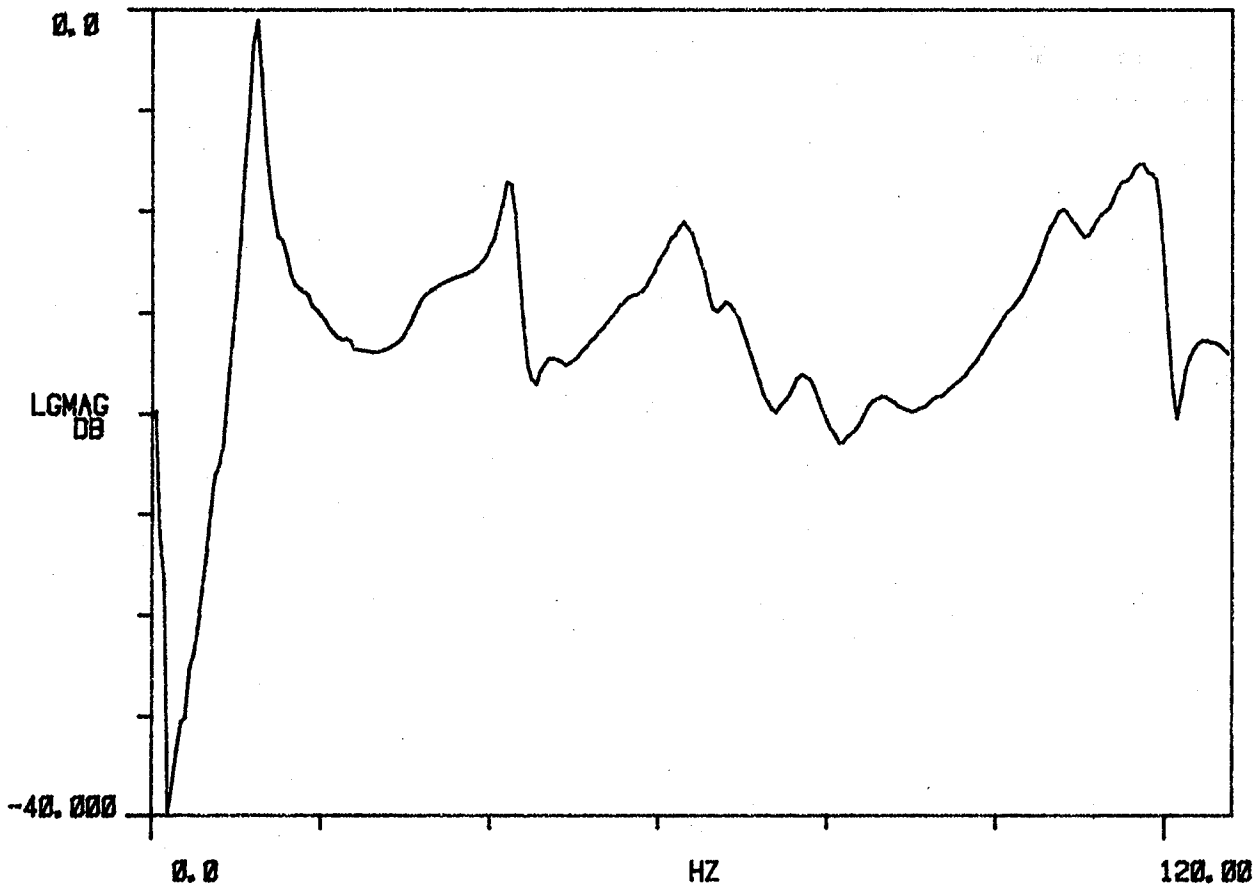
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.130	76.216	4.856	589.754 m	3.706
2	30.920	194.276	16.589	5.201	32.680
3	42.664	268.066	2.342	999.342 m	6.279
4	63.409	398.414	4.191	2.660	16.713
5	71.009	446.162	3.536	2.513	15.787
6	78.432	492.803	129.625 m	101.667 m	638.794 m
7	107.110	672.995	2.305	2.470	15.520
8	118.535	744.779	2.229	2.643	16.608

TRANS

R# 31

#A 325



FM4 BLADE 31. ACC. POS. #1. 3/82

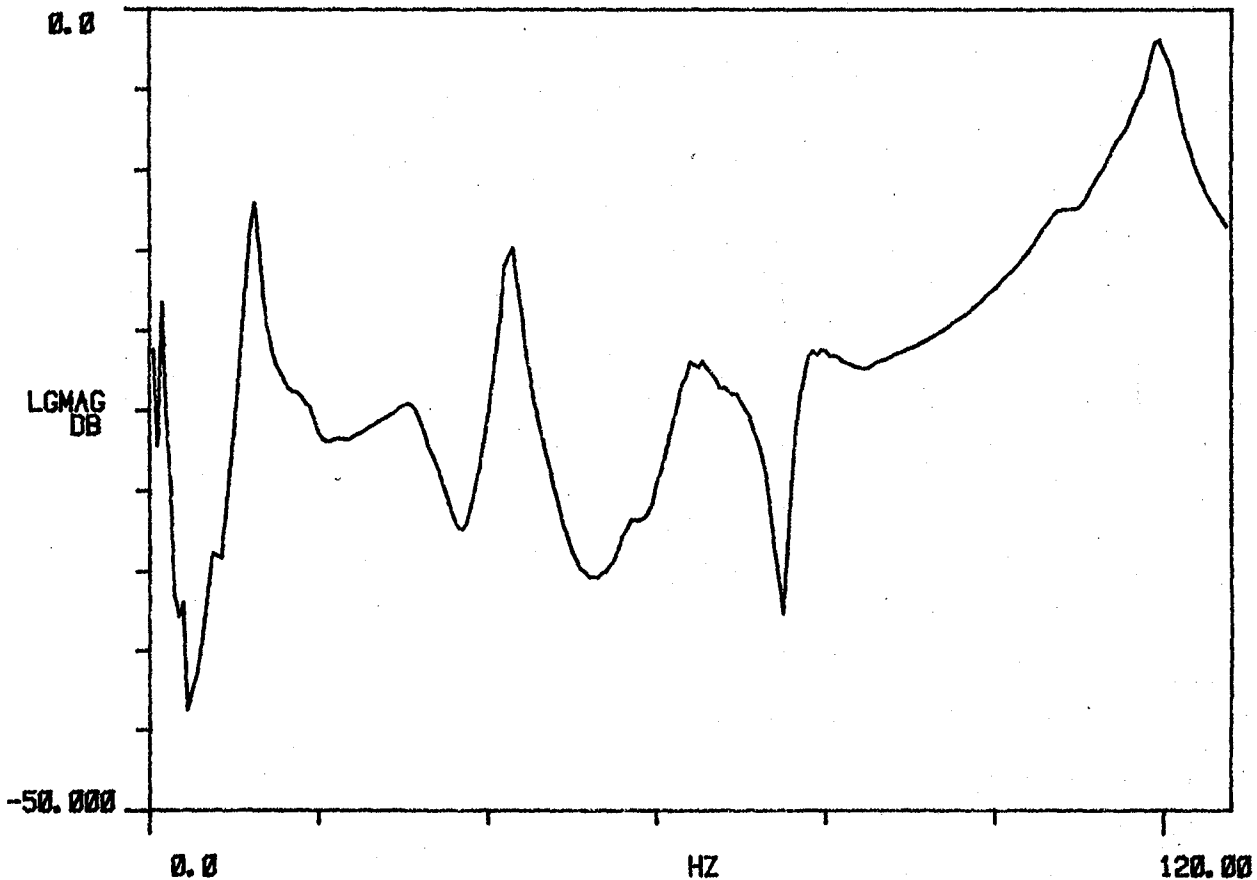
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.122	76.163	4.962	602.208	3.784
2	31.604	198.573	9.812	3.116	19.579
3	42.652	267.993	2.181	930.316	5.845
4	63.814	400.956	5.161	3.298	20.719
5	0.000	0.000	0.000	0.000	0.000
6	77.078	484.292	2.664	2.054	12.906
7	104.977	659.591	211.998	222.550	1.398
8	119.658	751.835	1.788	2.140	13.445

TRANS

R# 32

#A 325



FM4 BLADE 31. ACC. POS. #2. 3/82

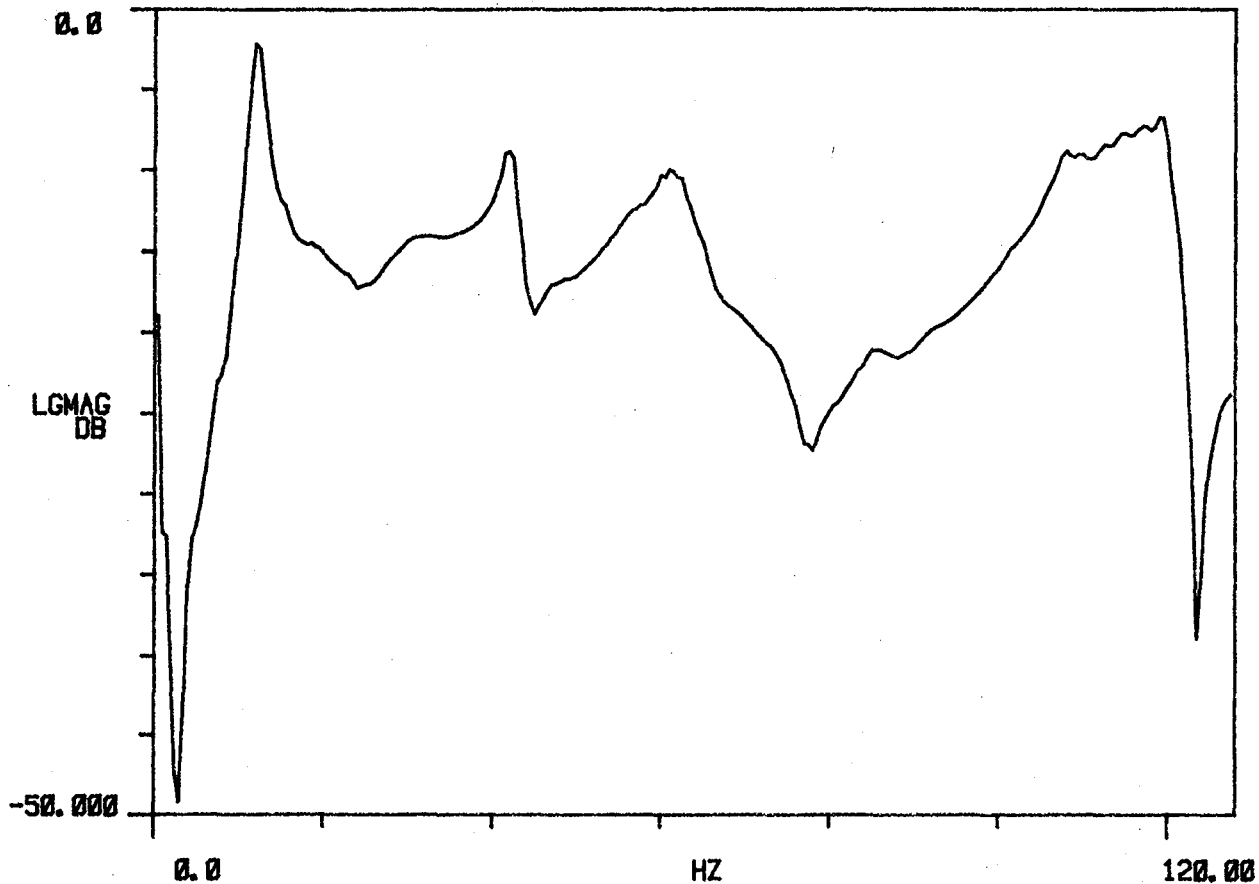
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	11.924	74.923	5.198	620.697	3.900
2	28.230	177.375	16.118	4.610	28.968
3	42.341	266.035	2.315	980.430	6.160
4	61.798	388.288	4.701	2.909	18.275
5	0.000	0.000	0.000	0.000	0.000
6	0.000	0.000	0.000	0.000	0.000
7	107.813	677.411	3.502	3.778	23.735
8	119.965	753.763	2.131	2.557	16.065

TRANS

R# 27

#A 325



FM4 BLADE 32. ACC. POS. #1. 3/82

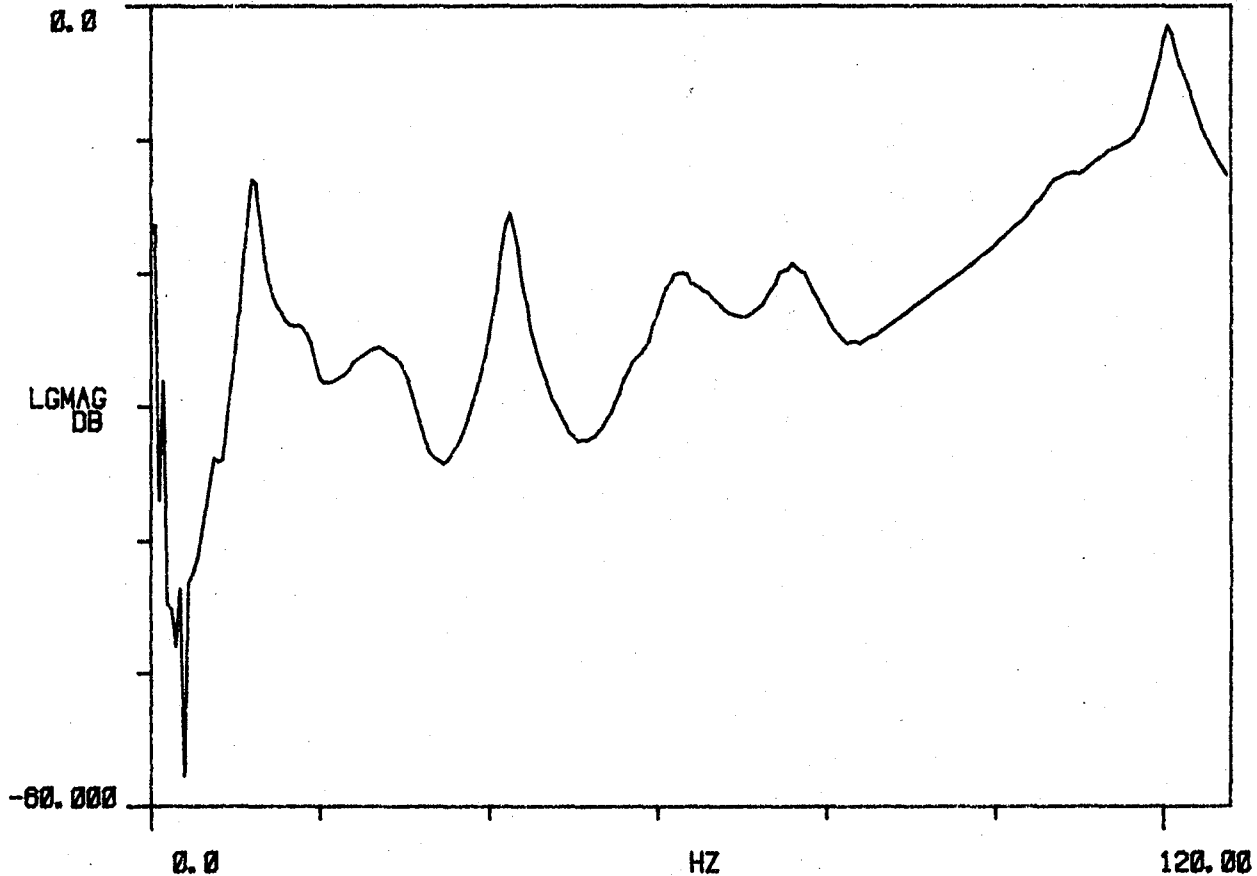
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.912	74.847	5.007	597.215	3.752
2	28.827	181.126	13.230	3.848	24.176
3	42.412	266.479	2.197	931.854	5.855
4	61.602	387.060	5.308	3.274	20.572
5	0.000	0.000	0.000	0.000	0.000
6	76.209	478.833	3.728	2.843	17.865
7	0.000	0.000	0.000	0.000	0.000
8	120.547	757.420	1.375	1.857	10.414

TRANS

R# 28

#A 325



FM4 BLADE 32. ACC. POS. #2. 3/82

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.030	75.587	3.474	418.166	2.627
2	0.000	0.000	0.000	0.000	0.000
3	42.682	268.180	2.353	1.005	6.312
4	63.042	396.108	5.171	3.265	20.512
5	0.000	0.000	0.000	0.000	0.000
6	75.544	474.659	2.366	1.708	11.233
7	106.833	671.253	2.510	2.662	16.852
8	118.668	745.613	1.290	1.531	9.620

TRANS

R# 9

#A 325

10.000

LGMAG
DB

-50.000

0.0

HZ

120.00

FM6 BLADE 33. ACC. POS. #1. 3/82

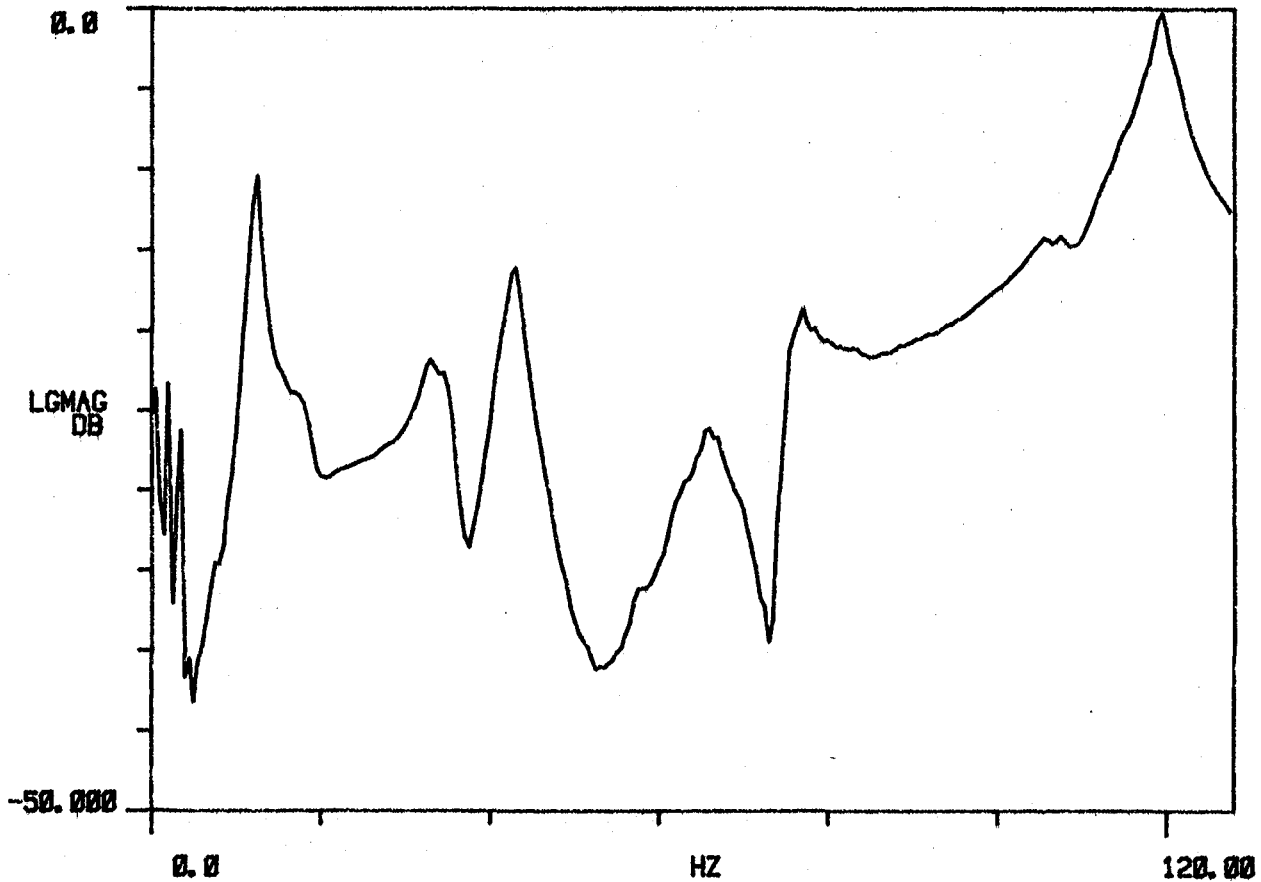
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.071	75.842	3.536	427.027	2.683
2	34.011	213.695	5.078	1.729	10.866
3	42.768	268.717	2.330	998.673	6.262
4	66.176	415.795	4.086	2.706	17.005
5	0.000	0.000	0.000	0.000	0.000
6	75.704	475.662	2.514	1.904	11.961
7	104.456	656.318	2.087	2.180	13.698
8	119.430	750.402	1.555	1.857	11.668

TRANS

R# 10

#A 325



FMS BLADE 33. ACC. POS. #2. 3/82

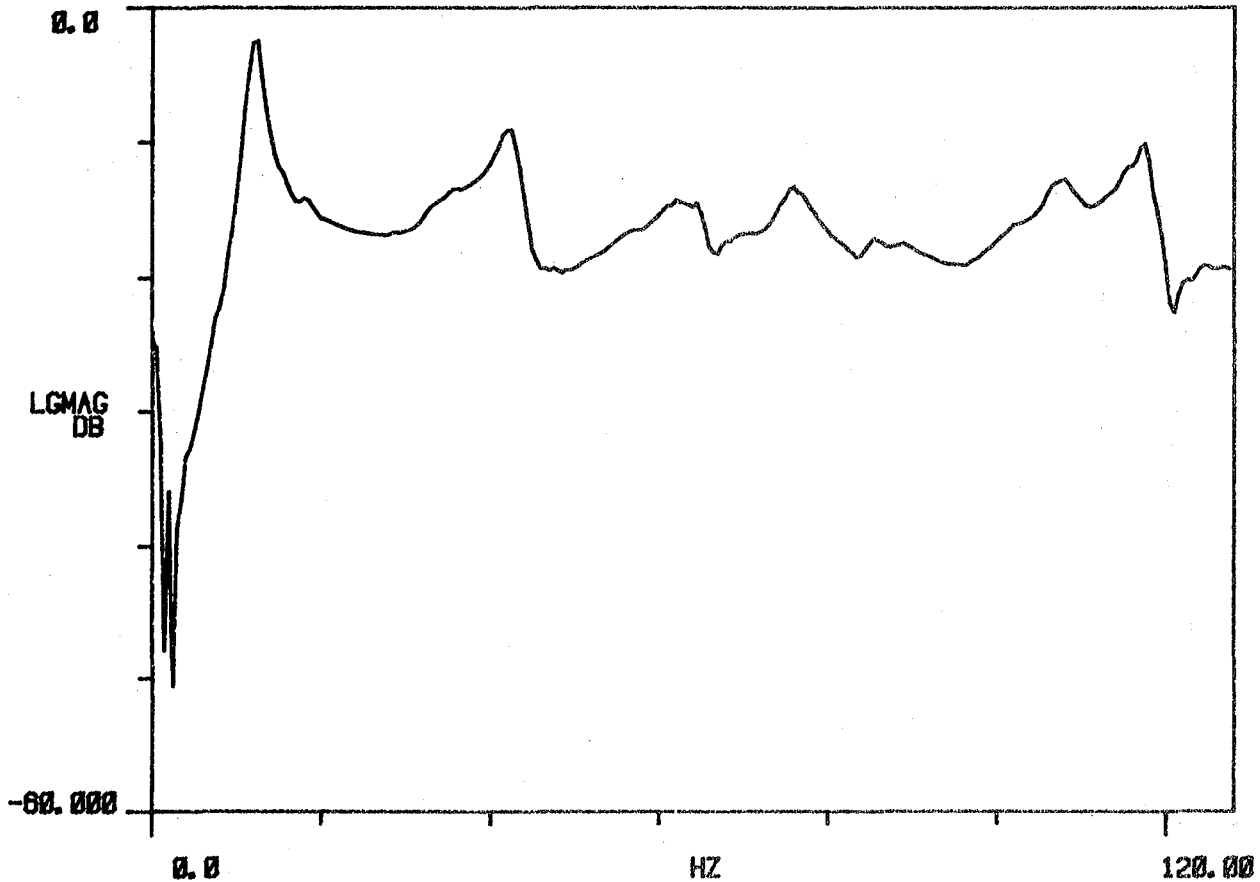
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.993	75.353	5.982	718.715	4.516
2	0.000	0.000	0.000	0.000	0.000
3	42.698	268.282	3.414	1.459	9.165
4	64.005	402.152	4.114	2.635	18.557
5	0.000	0.000	0.000	0.000	0.000
6	76.522	480.803	3.125	2.392	15.030
7	107.671	676.520	2.488	2.679	16.836
8	118.004	741.439	1.325	1.584	9.825

TRANS

R# 3

#A 325



FM6 BLADE 39. ACC. POS. #1. 3/82

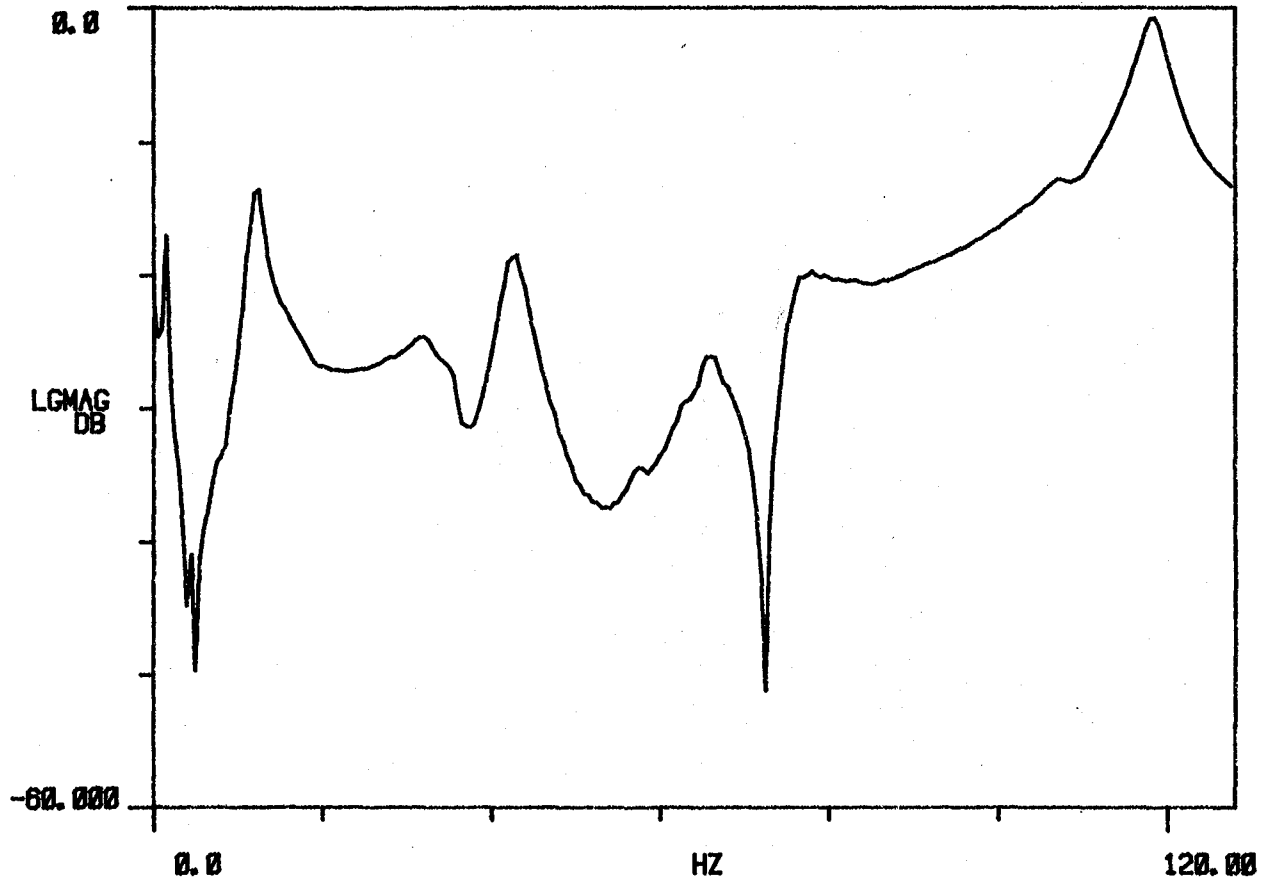
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.001	75.400	6.292	756.578	4.754
2	33.252	208.929	10.036	3.354	21.074
3	42.720	268.417	3.039	1.299	8.161
4	66.356	416.929	3.743	2.485	15.615
5	0.000	0.000	0.000	0.000	0.000
6	75.361	473.510	3.809	2.873	18.050
7	0.000	0.000	0.000	0.000	0.000
8	118.269	743.105	1.572	1.860	11.685

TRANS

R# 4

#A 325



FM6 BLADE 39. ACC. POS. #2. 3/82

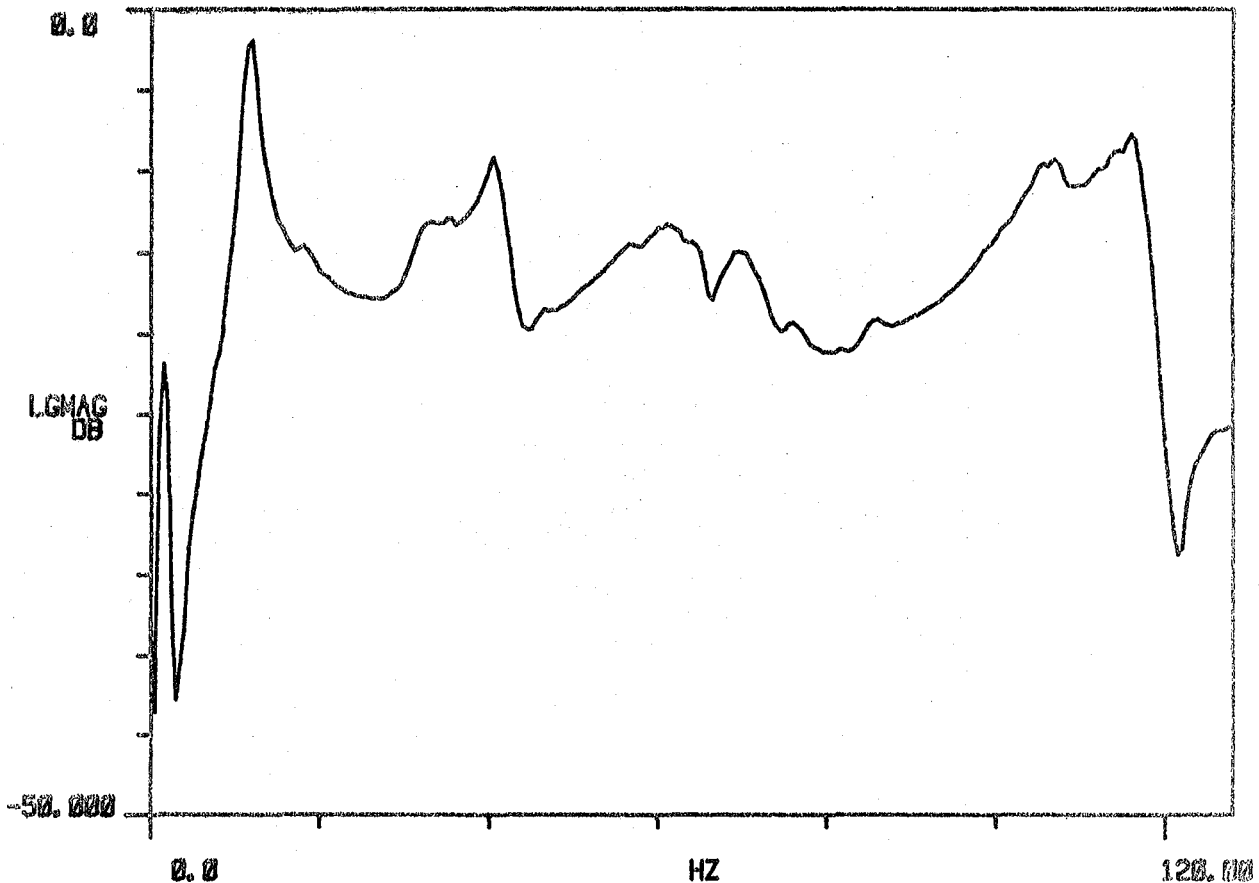
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.567	72.681	5.050	584.849	3.675
2	31.163	195.801	9.468	2.984	18.622
3	41.038	257.849	3.318	1.362	8.558
4	62.529	392.882	7.333	4.597	28.886
5	0.000	0.000	0.000	0.000	0.000
6	70.454	442.673	1.974	1.391	8.739
7	100.472	668.986	3.174	3.381	21.243
8	116.562	732.379	1.906	2.223	13.985

TRANS

R# 7

#A 325



FM8 BLADE 41. ACC. POS. #1. 3/82

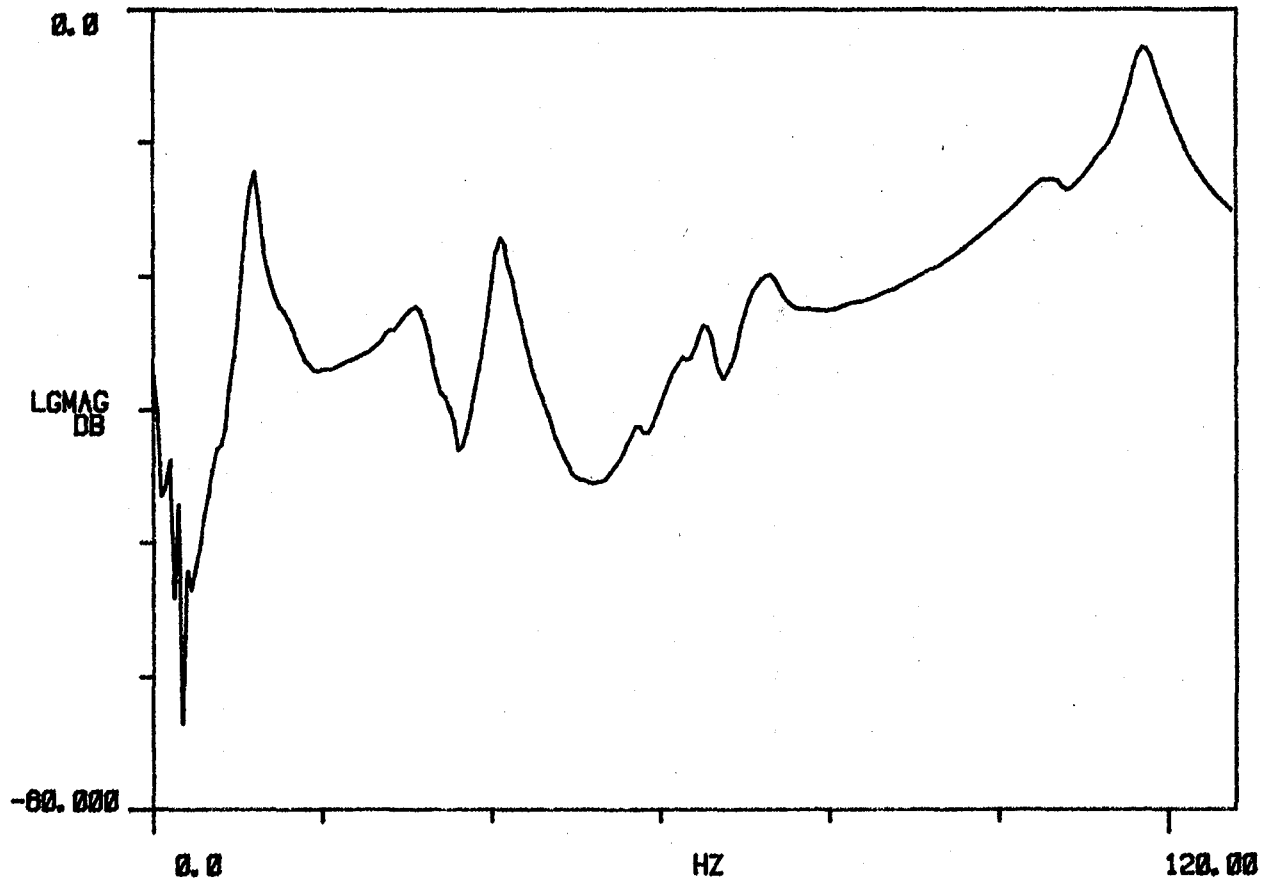
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.584	72.784	5.248	608.732	3.825
2	31.513	198.000	7.010	2.215	13.915
3	41.094	258.203	2.744	1.128	7.087
4	65.212	409.737	3.393	2.214	13.911
5	0.000	0.000	0.000	0.000	0.000
6	71.472	449.075	3.231	2.311	14.518
7	104.450	658.280	2.714	2.836	17.820
8	117.198	736.379	1.651	1.936	12.162

TRANS

R# 8

#A 325



FM6 BLADE 41. ACC. POS. #2. 3/82

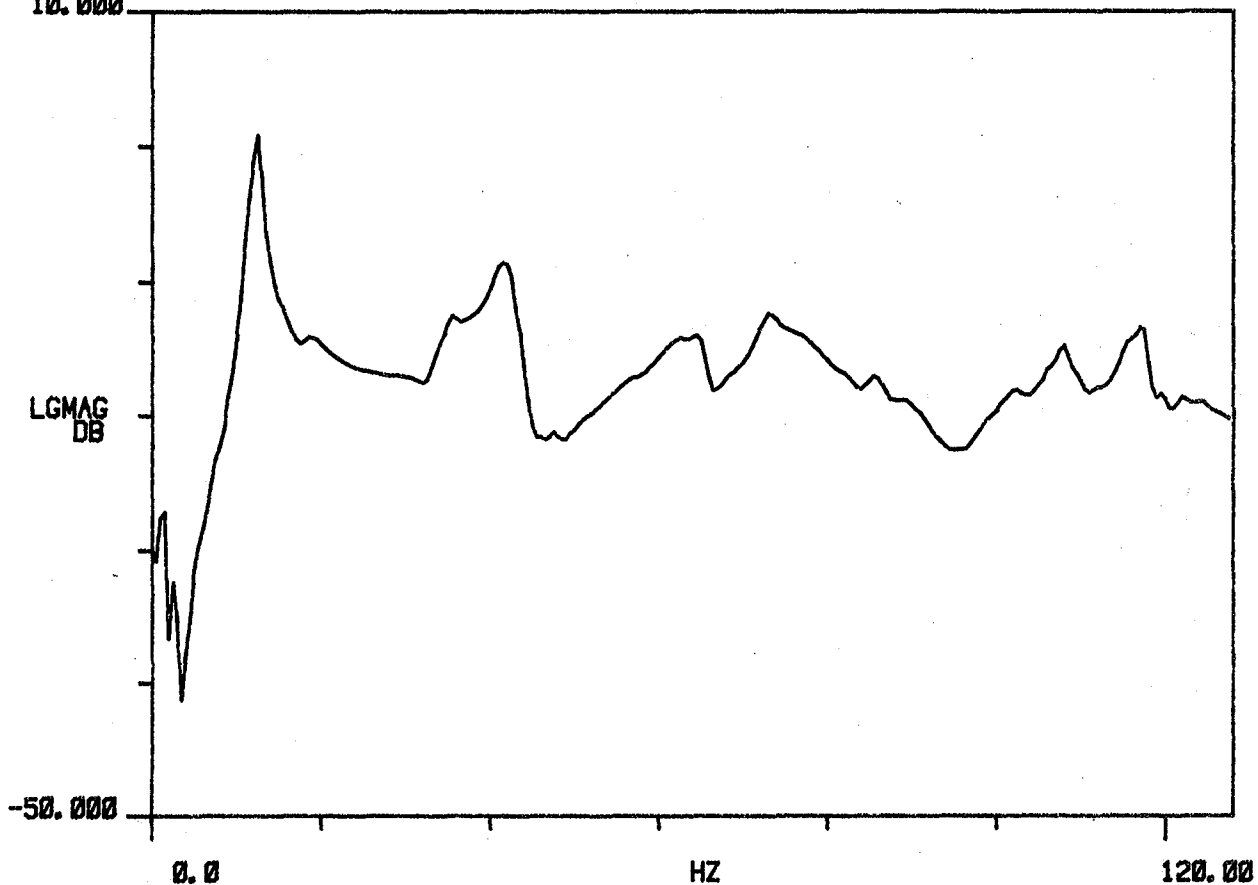
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.132	76.230	3.483	422.811	2.657
2	0.000	0.000	0.000	0.000	0.000
3	42.142	264.787	3.402	1.434	9.012
4	64.374	404.473	3.640	2.345	14.734
5	0.000	0.000	0.000	0.000	0.000
6	73.469	461.621	4.919	3.618	22.733
7	107.754	677.036	1.845	1.989	12.496
8	117.600	738.905	1.069	1.258	7.902

TRANS
10.000

R# 1

#A 325



FM6 BLADE 46. ACC. POS. #1. 3/82

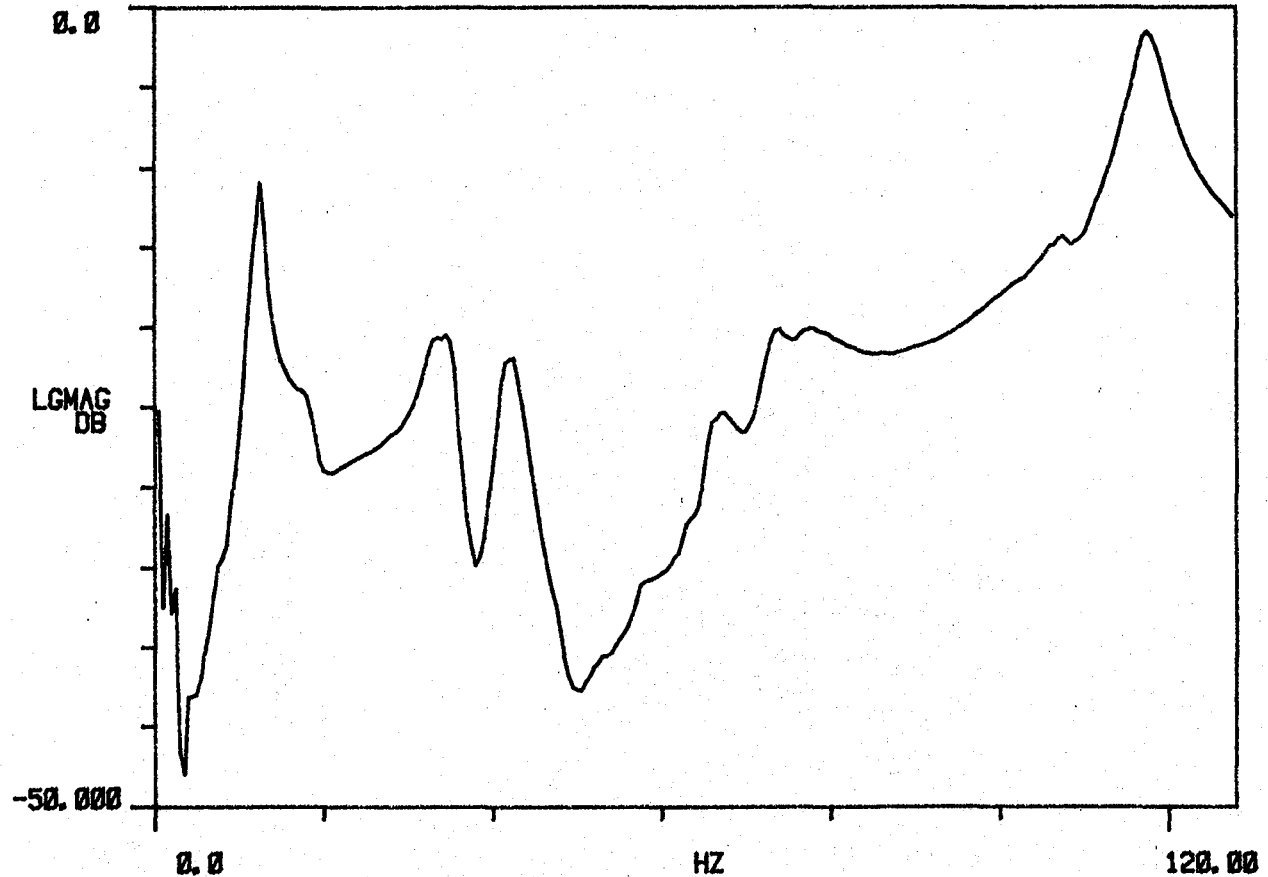
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.158	76.392	3.526	428.993	2.695
2	34.458	216.505	4.552	1.570	9.865
3	42.103	264.539	2.644	1.114	6.998
4	67.683	425.263	3.134	2.122	13.332
5	0.000	0.000	0.000	0.000	0.000
6	73.278	460.420	4.495	3.297	20.715
7	106.272	667.727	2.454	2.609	16.393
8	117.495	738.243	1.648	1.937	12.169

TRANS

R# 2

#A 325



FM6 BLADE 46. ACC. POS. #2. 3/82

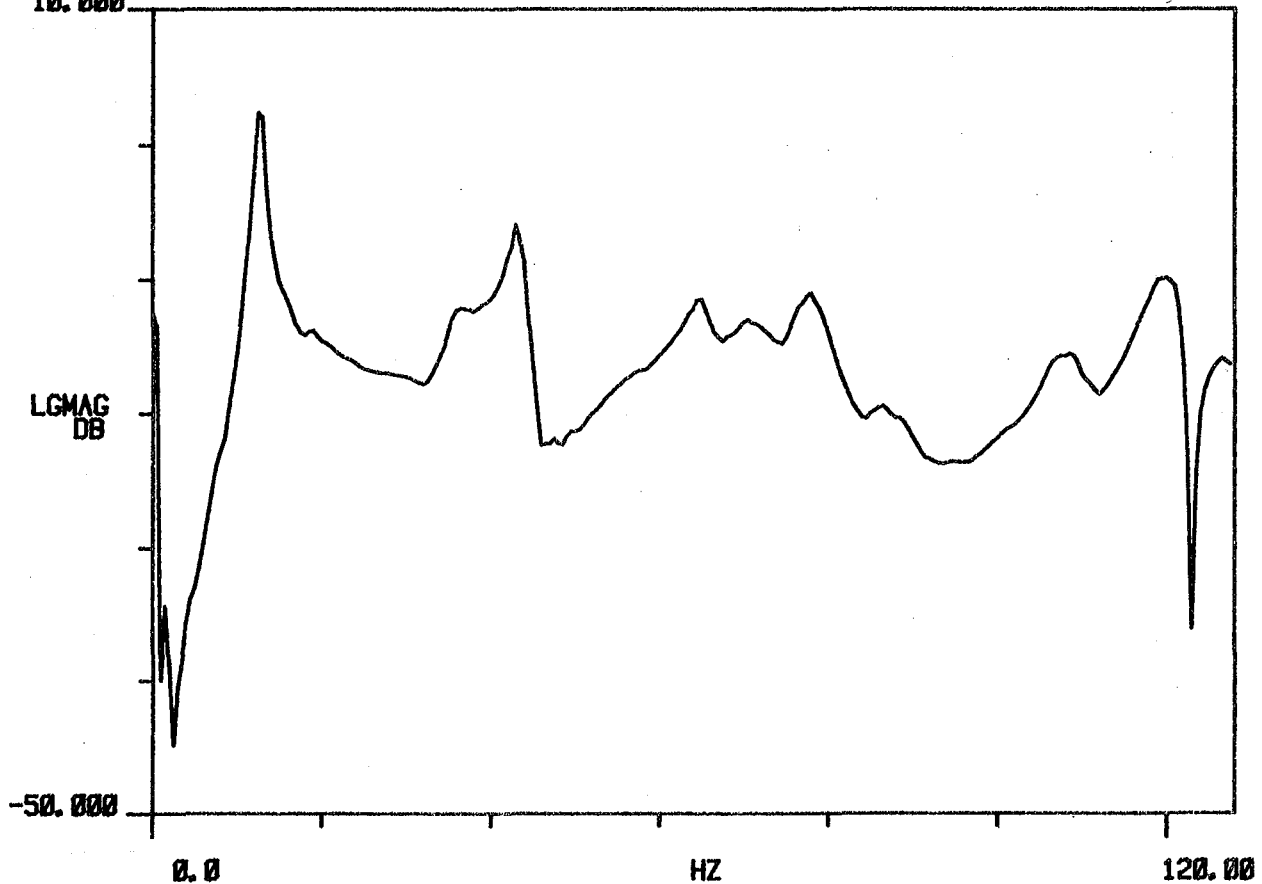
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	X	HZ	R/S
1	12.442	78.176	2.573	320.255	2.012
2	35.116	220.639	6.476	2.279	14.319
3	43.458	273.052	2.129	925.524	5.815
4	64.807	407.195	2.488	1.613	10.134
5	71.103	446.755	2.652	1.886	11.852
6	78.464	493.003	2.641	2.073	13.024
7	107.748	676.998	1.899	2.047	12.860
8	120.257	755.596	1.364	1.641	10.309

TRANS
10.000

R# 24

#A 325



FM5 BLADE 49. ACC. POS. #1. 3/82

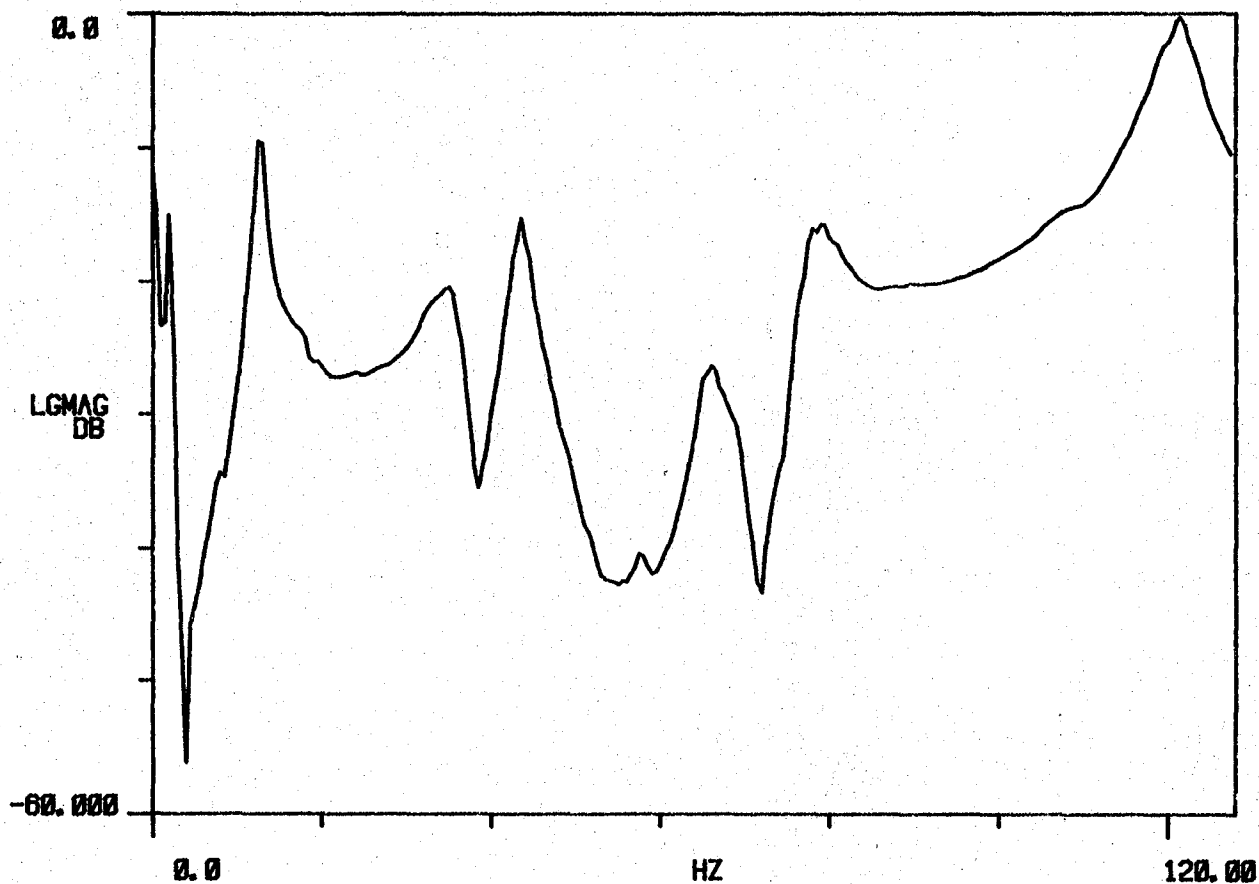
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.433	78.118	2.716	337.806	2.123
2	35.094	220.503	5.301	1.863	11.705
3	43.456	273.045	2.077	902.658	5.672
4	65.911	414.134	2.316	1.527	9.593
5	0.000	0.000	0.000	0.000	0.000
6	78.079	490.588	2.449	1.913	12.020
7	0.000	0.000	0.000	0.000	0.000
8	121.167	761.314	1.827	2.214	13.910

TRANS

R# 25

#A 325



FM5 BLADE 49, ACC. POS. #2, 3/82

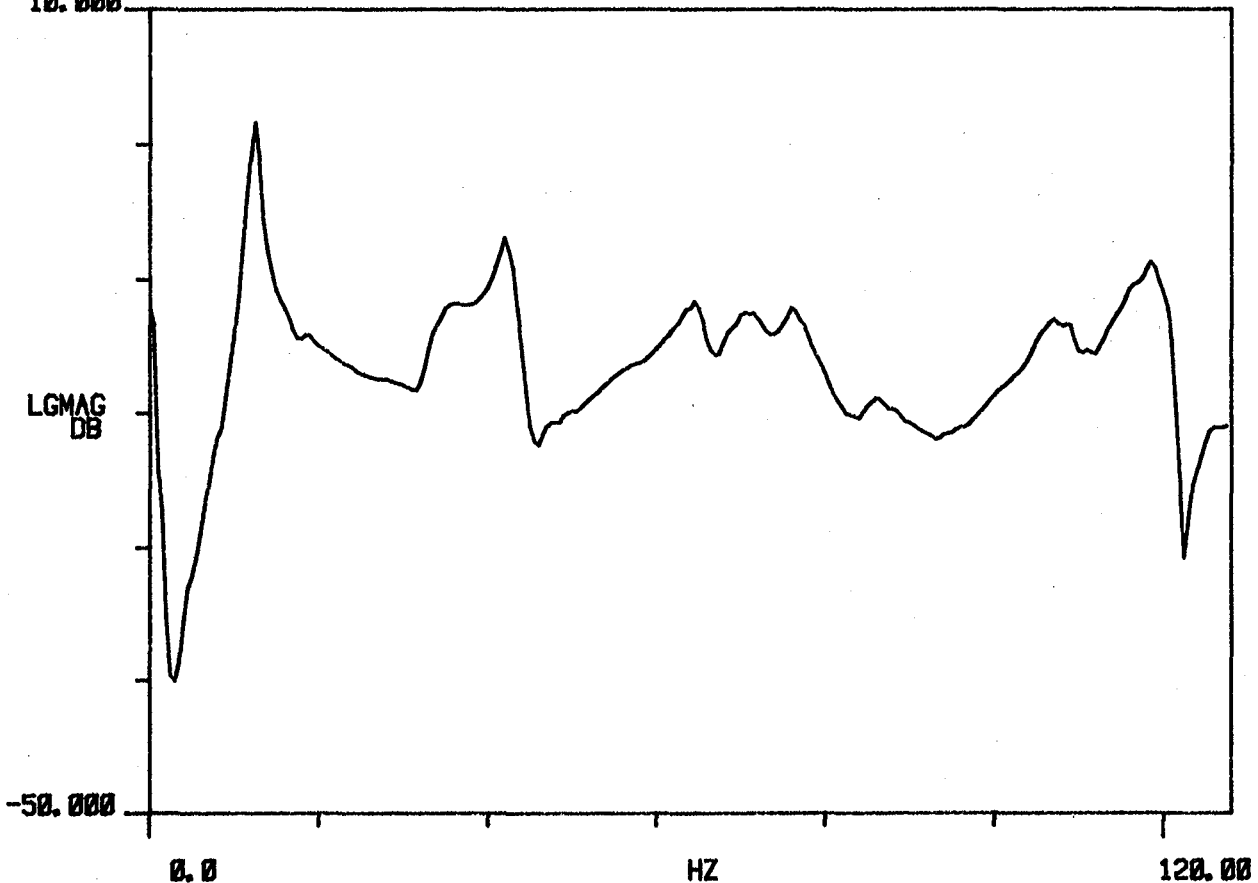
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.200	76.700	3.493	426.600	2.681
2	33.675	211.589	8.246	2.786	17.500
3	42.540	267.286	2.599	1.106	6.949
4	64.536	405.489	2.462	1.589	9.987
5	70.460	442.713	2.538	1.789	11.240
6	77.370	486.128	3.078	2.382	14.988
7	106.914	671.758	2.308	2.468	15.510
8	119.267	749.380	1.627	1.940	12.190

TRANS
10.000

R# 26

#A 325



FM5 BLADE 50. ACC. POS. #1. 3/82

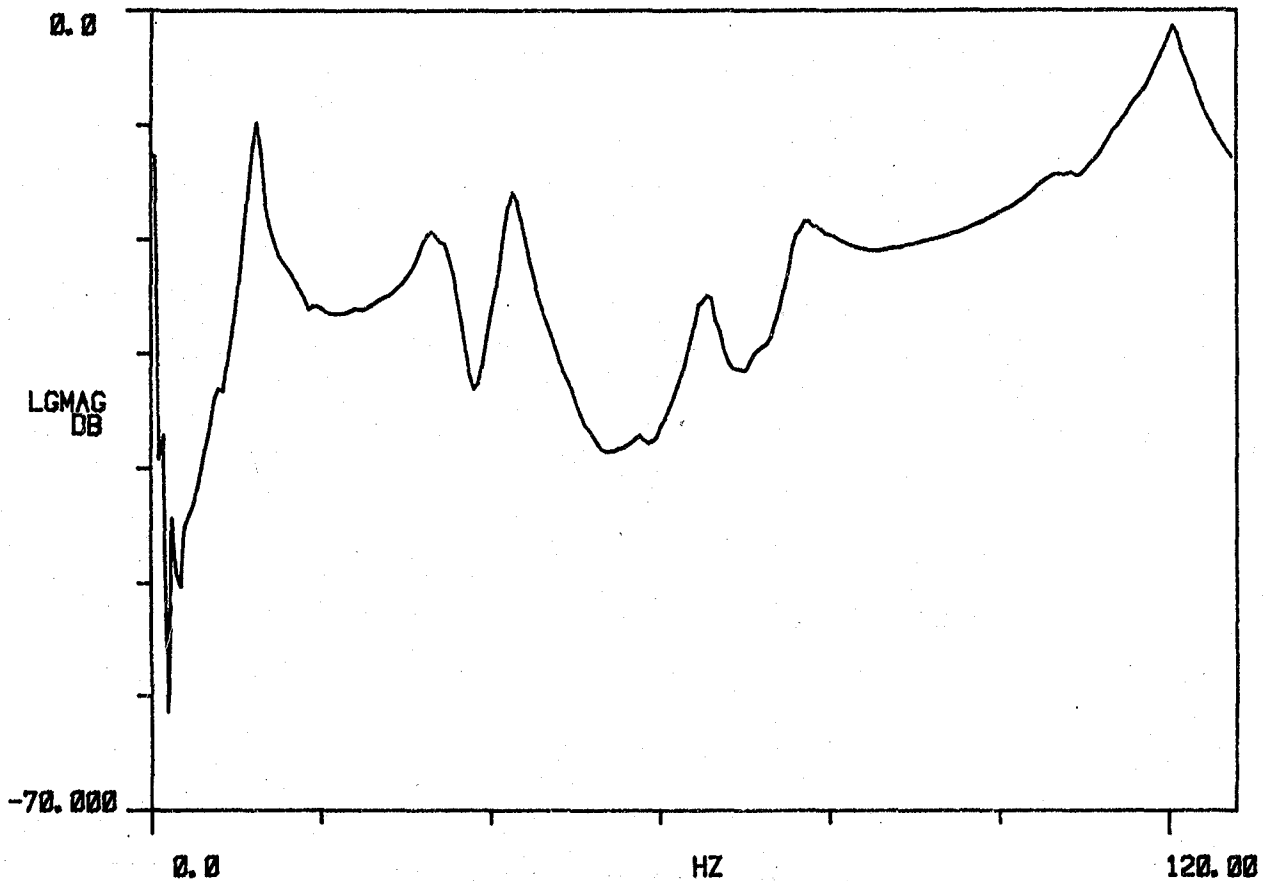
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.186	76.568	3.692	450.286	2.829
2	33.751	212.065	5.906	1.997	12.546
3	42.564	267.436	2.318	986.738	6.200
4	65.204	409.689	2.072	1.352	8.493
5	0.000	0.000	0.000	0.000	0.000
6	76.000	477.522	3.304	2.512	15.786
7	0.000	0.000	0.000	0.000	0.000
8	120.495	757.094	1.755	2.116	13.293

TRANS

R# 27

#A 325



FM5 BLADE 50. ACC. POS. #2. 3/82

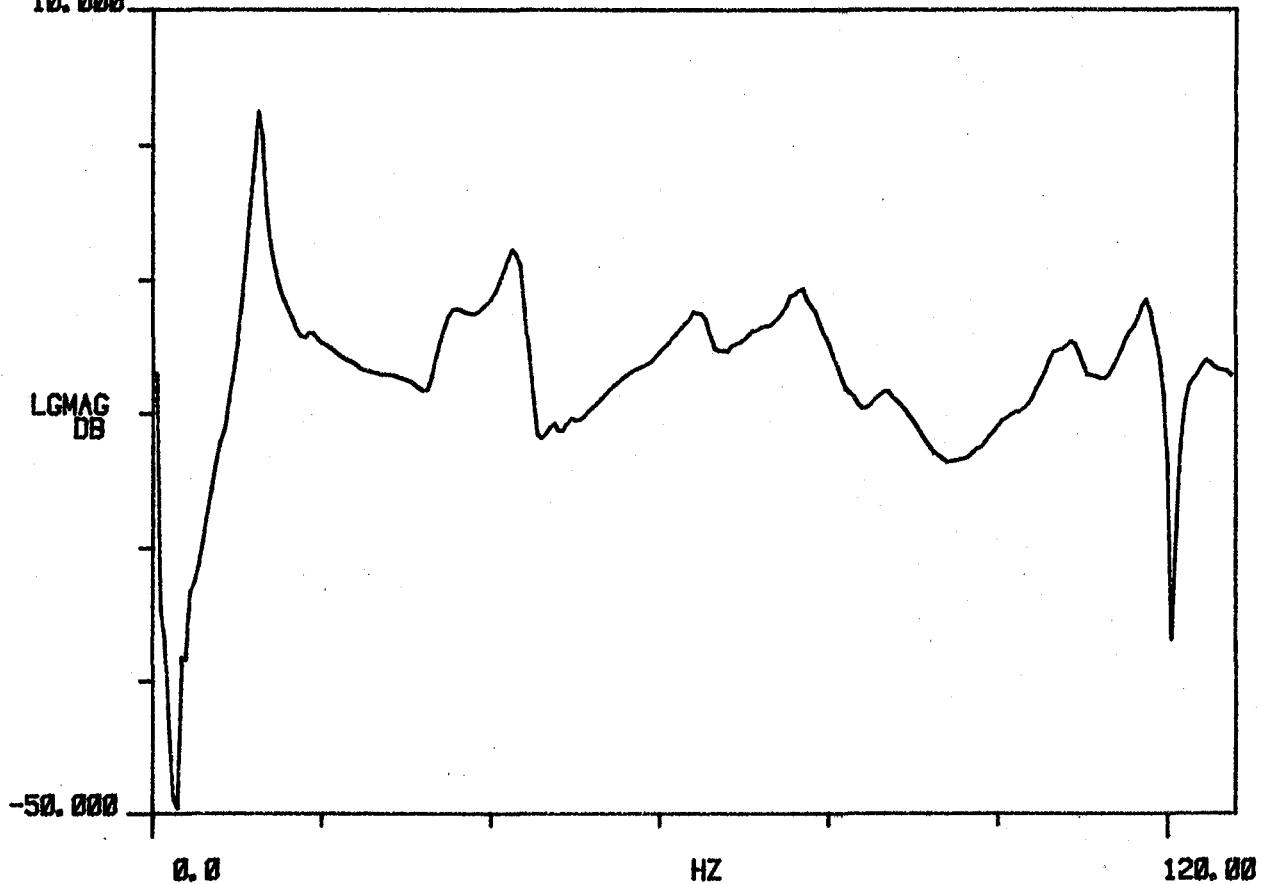
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.306	77.324	2.575	317.052	1.992
2	34.213	214.965	5.813	1.992	12.517
3	43.204	271.459	2.599	1.123	7.057
4	64.513	405.346	3.155	2.037	12.796
5	0.000	0.000	0.000	0.000	0.000
6	77.575	487.417	3.372	2.617	16.443
7	107.969	678.391	2.208	2.384	14.979
8	118.078	741.907	1.223	1.444	9.073

TRANS
10.000

R#: 30

#A: 325



FM5 BLADE 51. ACC. POS. #1. 3/82

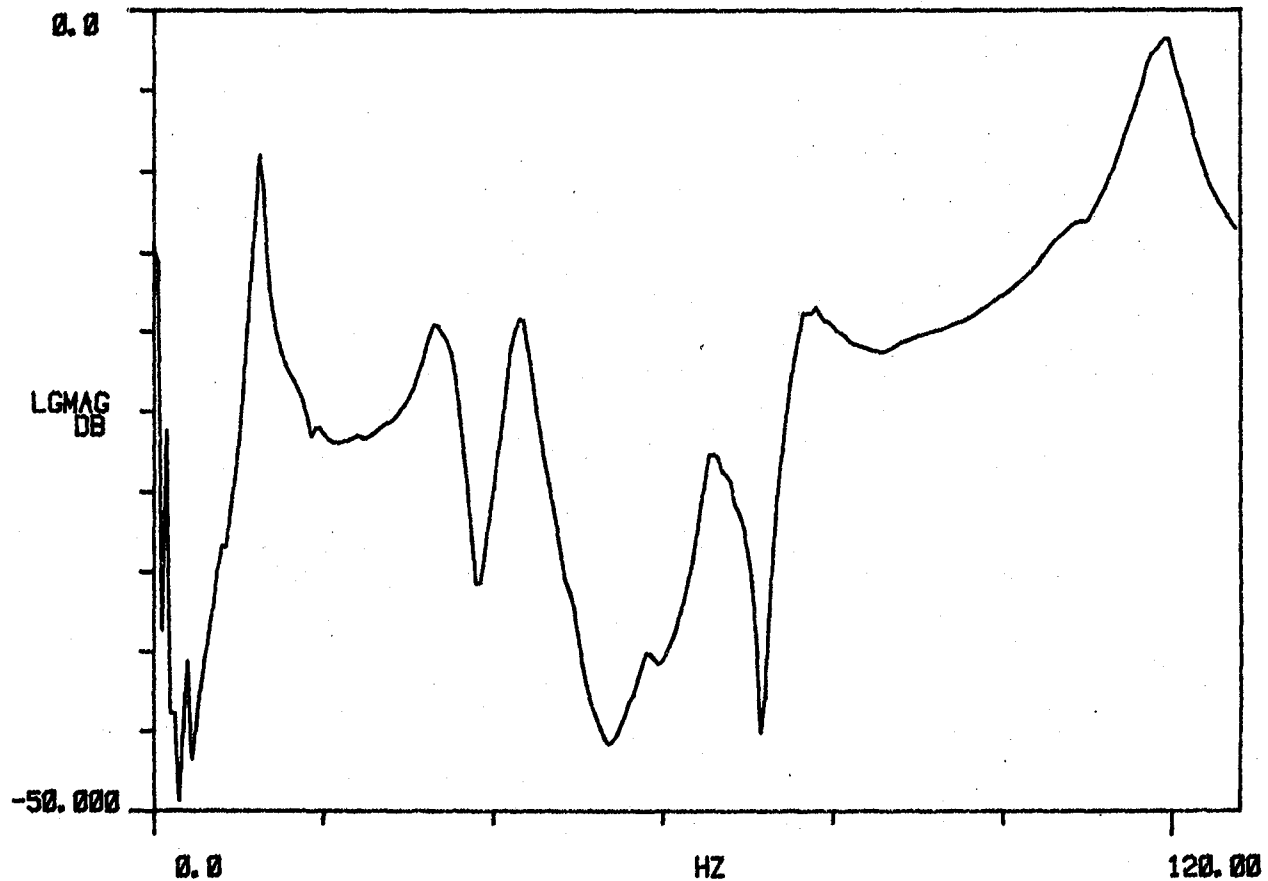
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.285	77.190	2.987	367.185	2.307
2	33.998	213.615	5.260	1.791	11.251
3	43.109	270.865	2.590	1.117	7.018
4	64.426	404.799	3.882	2.503	15.727
5	66.243	416.216	2.605	1.726	10.847
6	76.125	478.310	3.112	2.370	14.893
7	0.000	0.000	0.000	0.000	0.000
8	118.729	745.994	1.973	2.343	14.722

TRANS

R# 29

#A 325



FM5 BLADE 51. ACC. POS. #2. 3/82

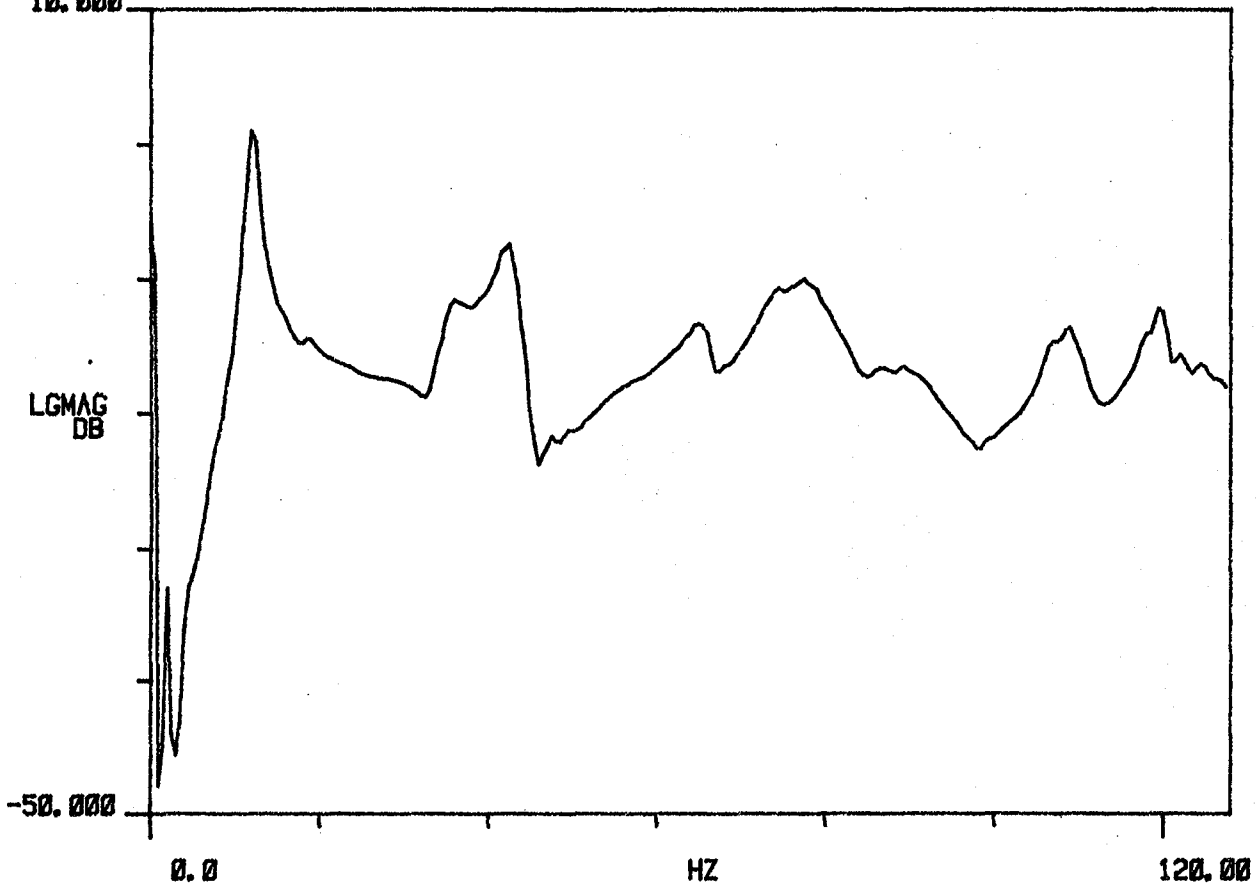
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.898	74.757	3.328	395.991	2.488
2	34.595	217.366	4.779	1.655	10.401
3	42.700	268.291	3.023	1.291	8.113
4	65.421	411.050	2.336	1.529	9.604
5	0.000	0.000	0.000	0.000	0.000
6	77.136	484.659	5.592	4.320	27.146
7	108.598	682.340	2.093	2.274	14.287
8	120.345	756.148	980.919	1.181	7.418

TRANS
10.000

R# 1

#A 325



FM5 BLADE 53. ACC. POS. #1. 3/82

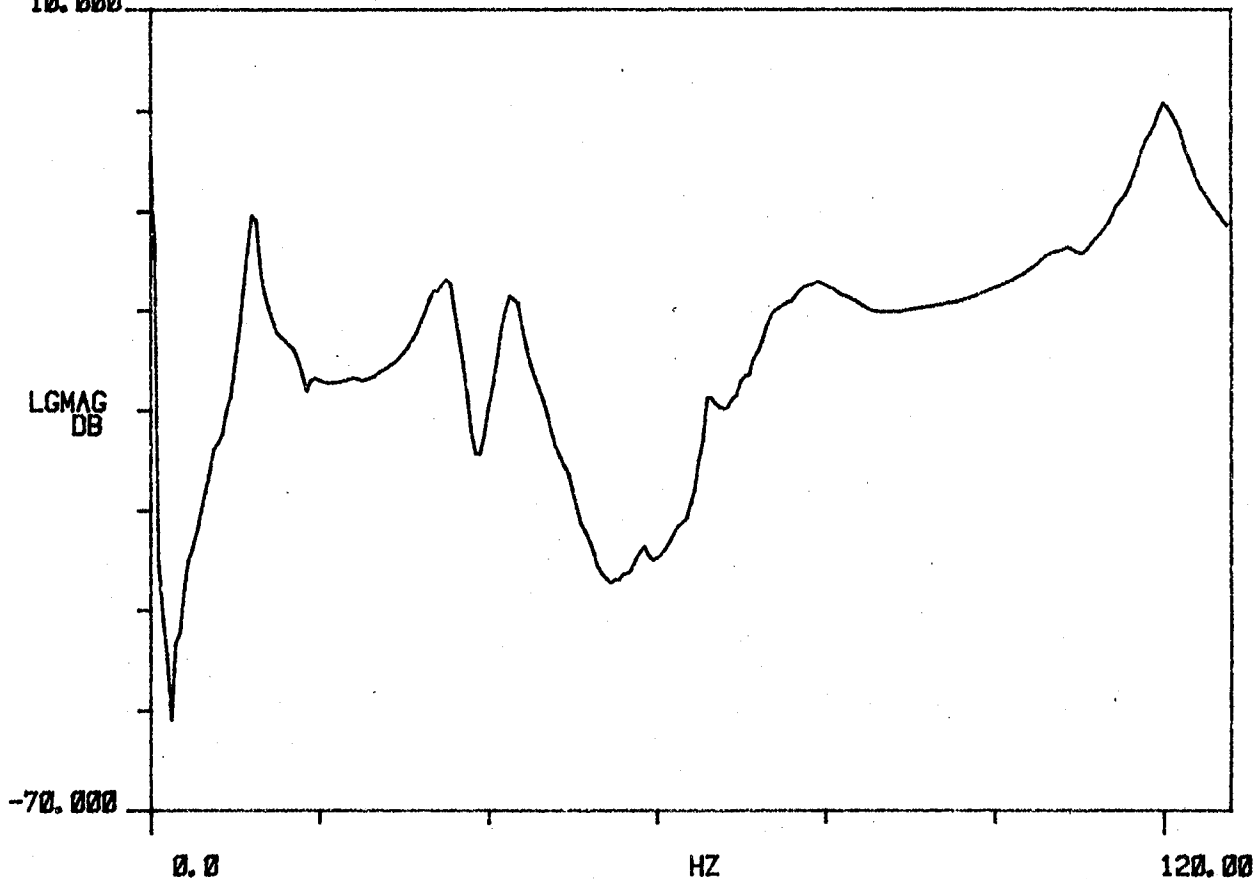
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.937	75.003	3.574	426.947 m	2.683
2	35.076	220.404	4.160	1.461	9.177
3	42.753	268.624	2.618	1.120	7.035
4	66.477	417.689	2.062	1.371	8.615
5	0.000	0.000	0.000	0.000	0.000
6	76.185	478.686	5.396	4.117	25.868
7	106.658	670.151	-72.527 m	-77.356 m	-486.039 m
8	120.256	755.592	1.535	1.846	11.601

TRANS
10.000

R# 2

#A 325



FM5 BLADE 53. ACC. POS #2. 3/82

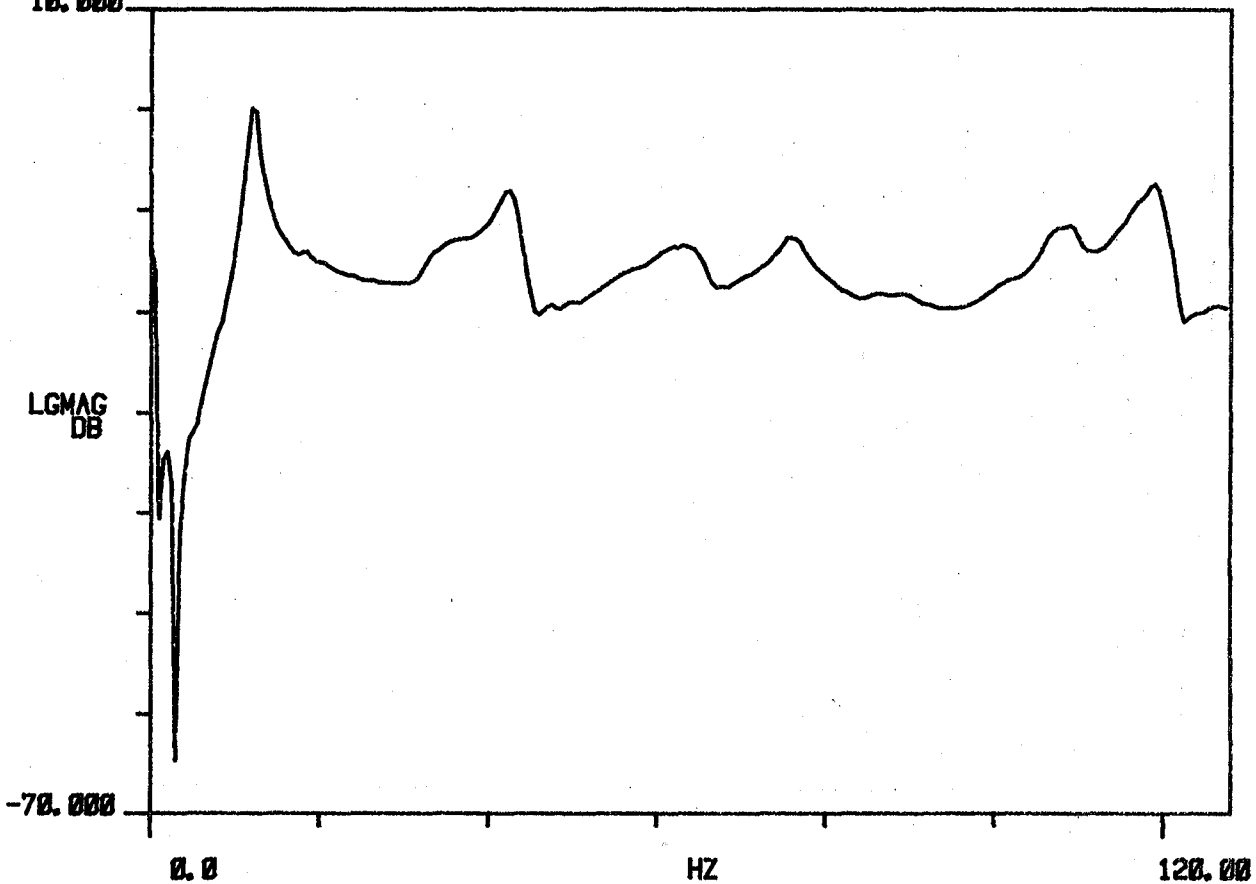
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.062	75.789	4.635	559.739	3.517
2	32.021	201.194	12.848	4.148	26.065
3	42.852	269.248	3.052	1.308	8.221
4	64.027	402.294	4.338	2.780	17.468
5	0.000	0.000	0.000	0.000	0.000
6	76.420	480.159	2.797	2.138	13.435
7	108.184	679.738	2.312	2.502	15.718
8	119.331	749.780	1.264	1.508	9.474

TRANS
10.000

R# 31

#A 325



FM5 BLADE 54. ACC. POS. #1. 3/82

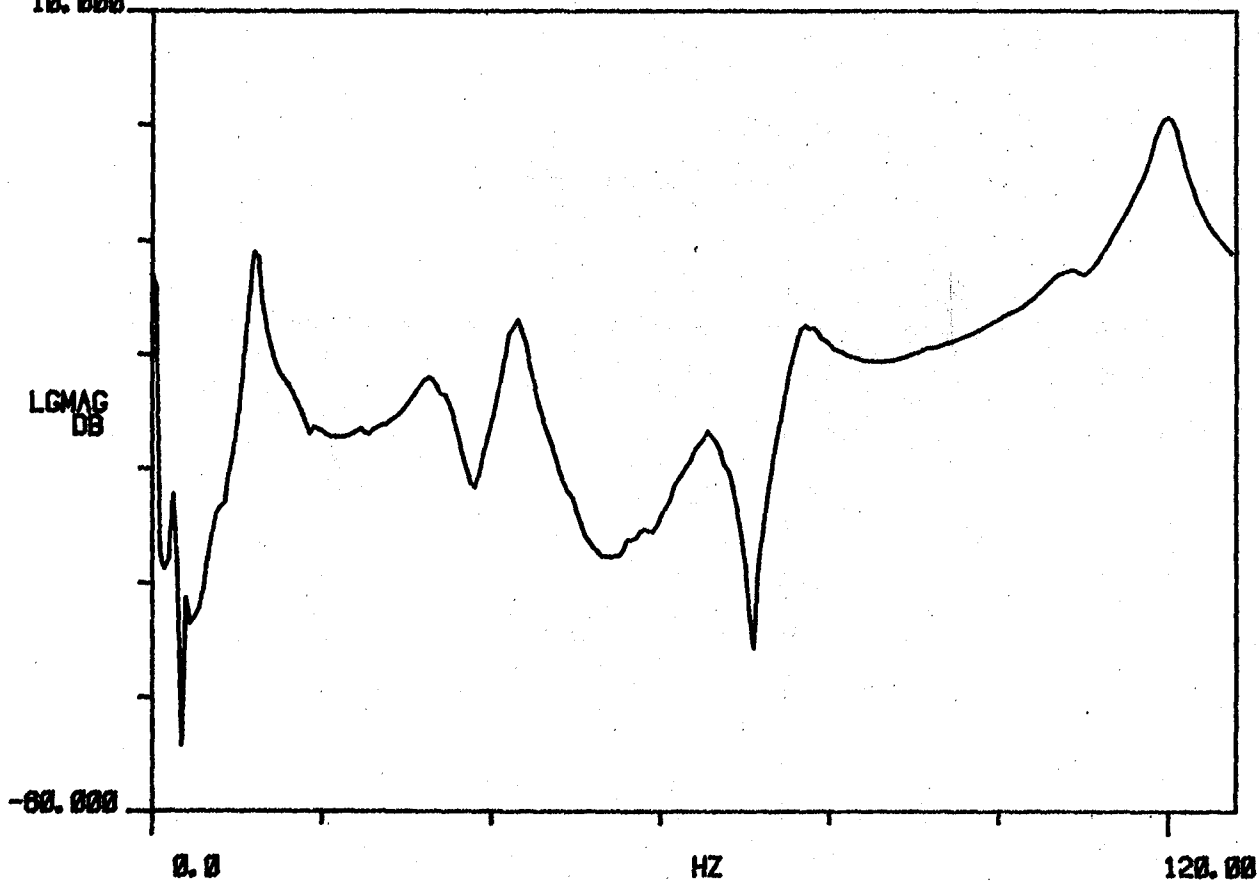
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.887	75.943	4.976	602.235	3.784
2	33.408	209.909	7.374	2.470	15.520
3	42.943	268.816	2.891	1.242	7.802
4	65.890	414.000	3.434	2.264	14.225
5	0.000	0.000	0.000	0.000	0.000
6	76.219	478.895	2.907	2.217	13.928
7	105.984	665.917	3.215	3.409	21.423
8	119.916	753.455	1.444	1.732	10.883

TRANS
10.000

R# 32

#A 325



FM5 BLADE 54. ACC. POS. #2, 3/82

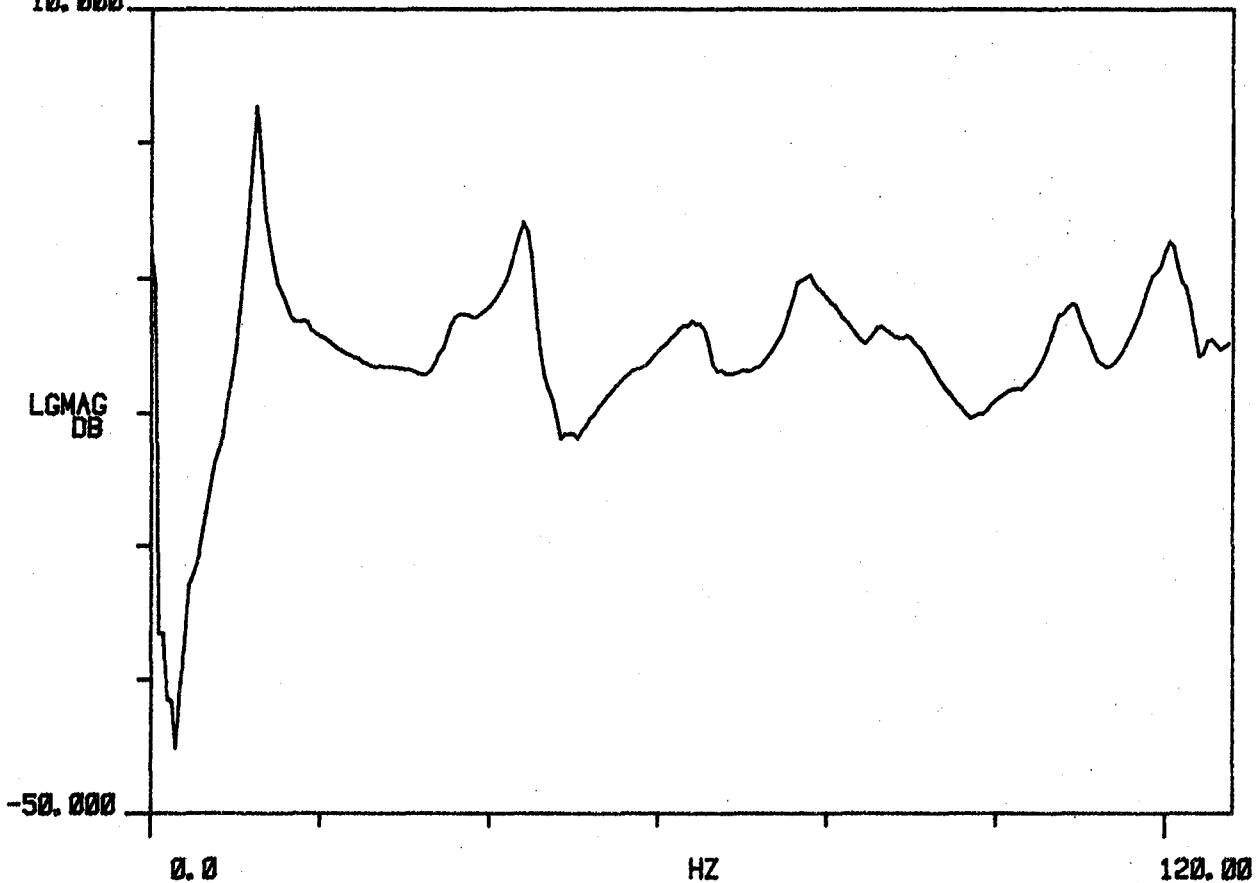
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.395	77.881	3.351	415.587	2.811
2	34.991	219.855	6.605	2.316	14.553
3	44.388	278.898	2.366	1.051	6.601
4	64.448	404.940	3.889	2.508	15.760
5	0.000	0.000	0.000	0.000	0.000
6	77.461	486.704	3.270	2.535	15.926
7	108.709	683.041	1.832	1.992	12.516
8	121.203	761.541	1.146	1.389	8.729

TRANS
10.000

R# 22

#A 325



FM5 BLADE 55. ACC. POS. #1. 3/82

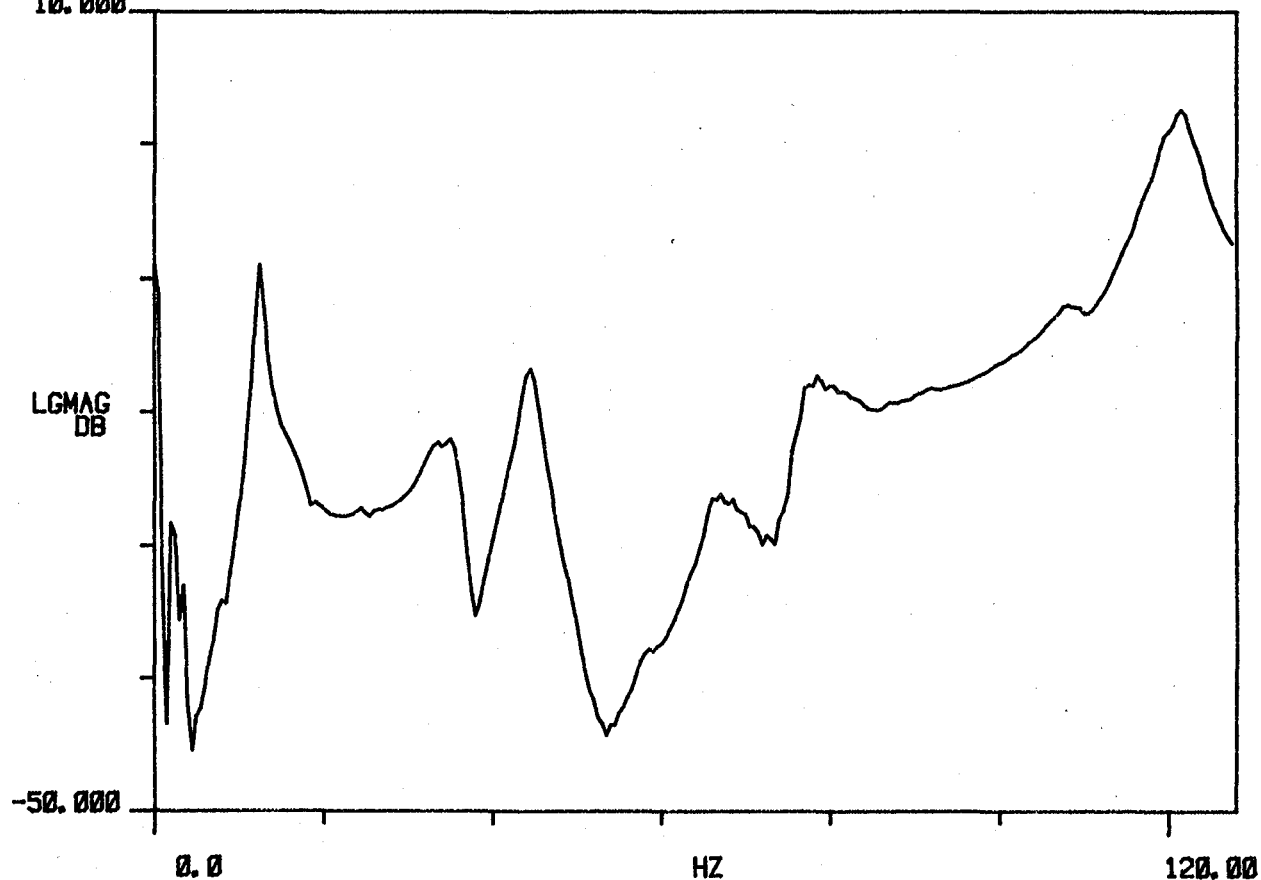
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.423	78.057	3.702	460.226	2.892
2	34.984	219.809	5.333	1.868	11.739
3	44.474	279.441	2.303	1.025	6.438
4	68.680	431.530	4.839	3.327	20.905
5	0.000	0.000	0.000	0.000	0.000
6	77.241	485.316	3.294	2.548	15.995
7	106.692	670.364	2.548	2.720	17.088
8	121.178	761.382	1.798	2.180	13.694

TRANS
10.000

R# 23

#A 325



FMS BLADE 55. ACC. POS. #2. 3/82

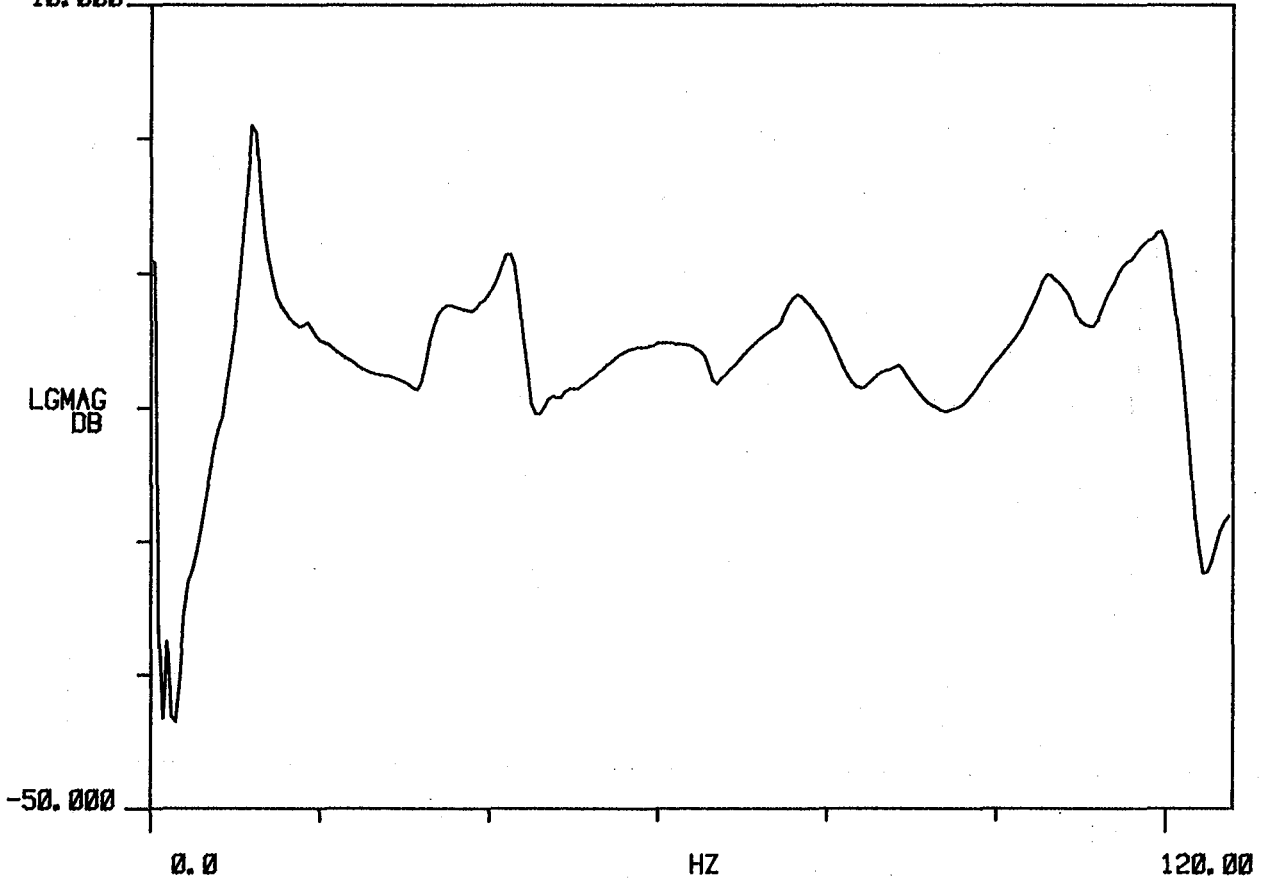
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.932	74.973	3.462	413.310	2.597
2	33.178	208.465	6.278	2.087	13.113
3	42.844	269.195	2.772	1.188	7.466
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	77.455	486.661	3.585	2.778	17.457
7	106.460	668.907	2.416	2.573	16.168
8	119.327	749.753	1.794	2.141	13.450

TRANS
10.000

R#: 10

#A: 325



FM5 BLADE 56. ACC. POS. #1. 3/82

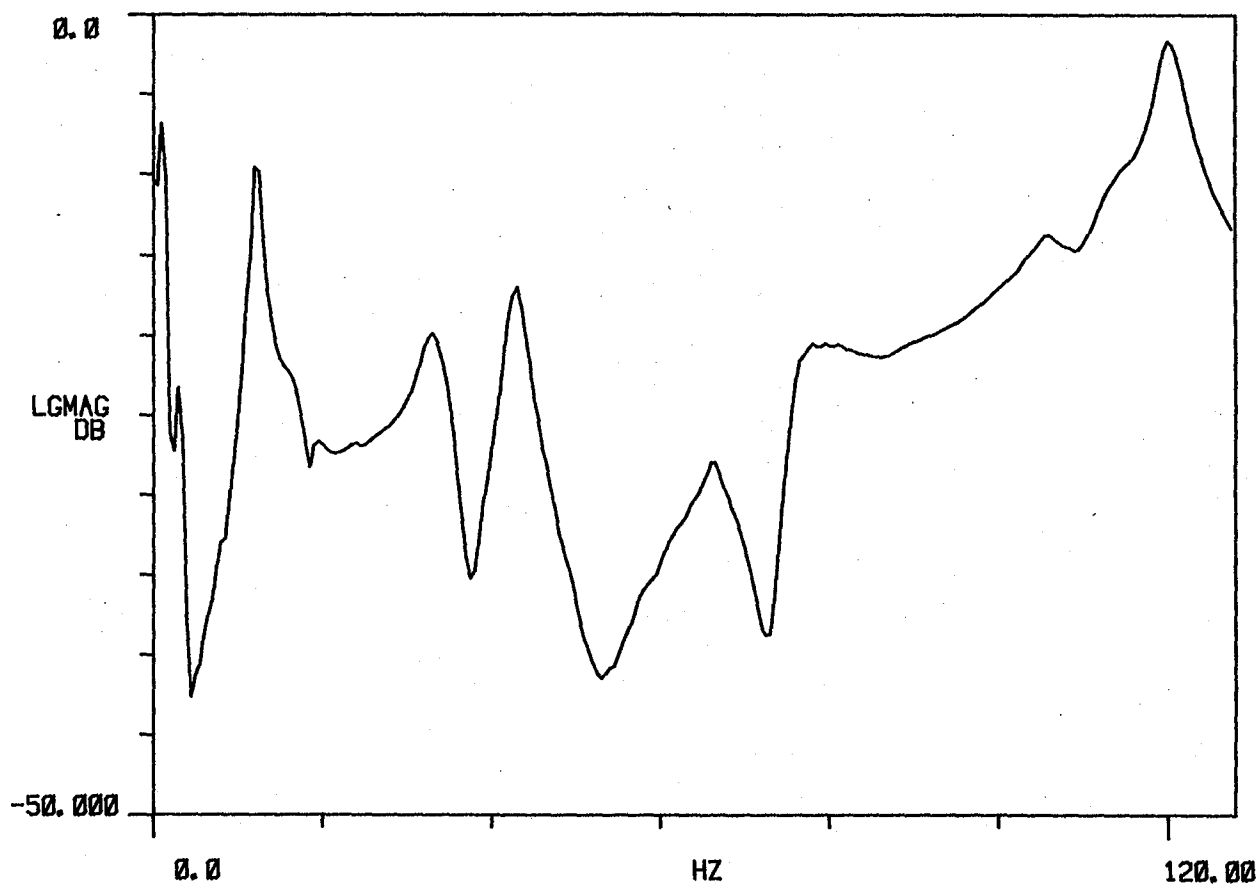
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.956	75.124	3.575	427.680	2.687
2	33.415	209.954	4.945	1.654	10.394
3	42.839	269.166	2.450	1.050	6.596
4	66.291	416.517	3.777	2.506	15.743
5	0.000	0.000	0.000	0.000	0.000
6	75.819	476.388	3.990	3.027	19.022
7	104.635	657.439	2.705	2.831	17.788
8	120.266	755.655	1.435	1.726	10.846

TRANS

R# 11

#A 325



FM5 BLADE 56. ACC. POS. #2. 3/82

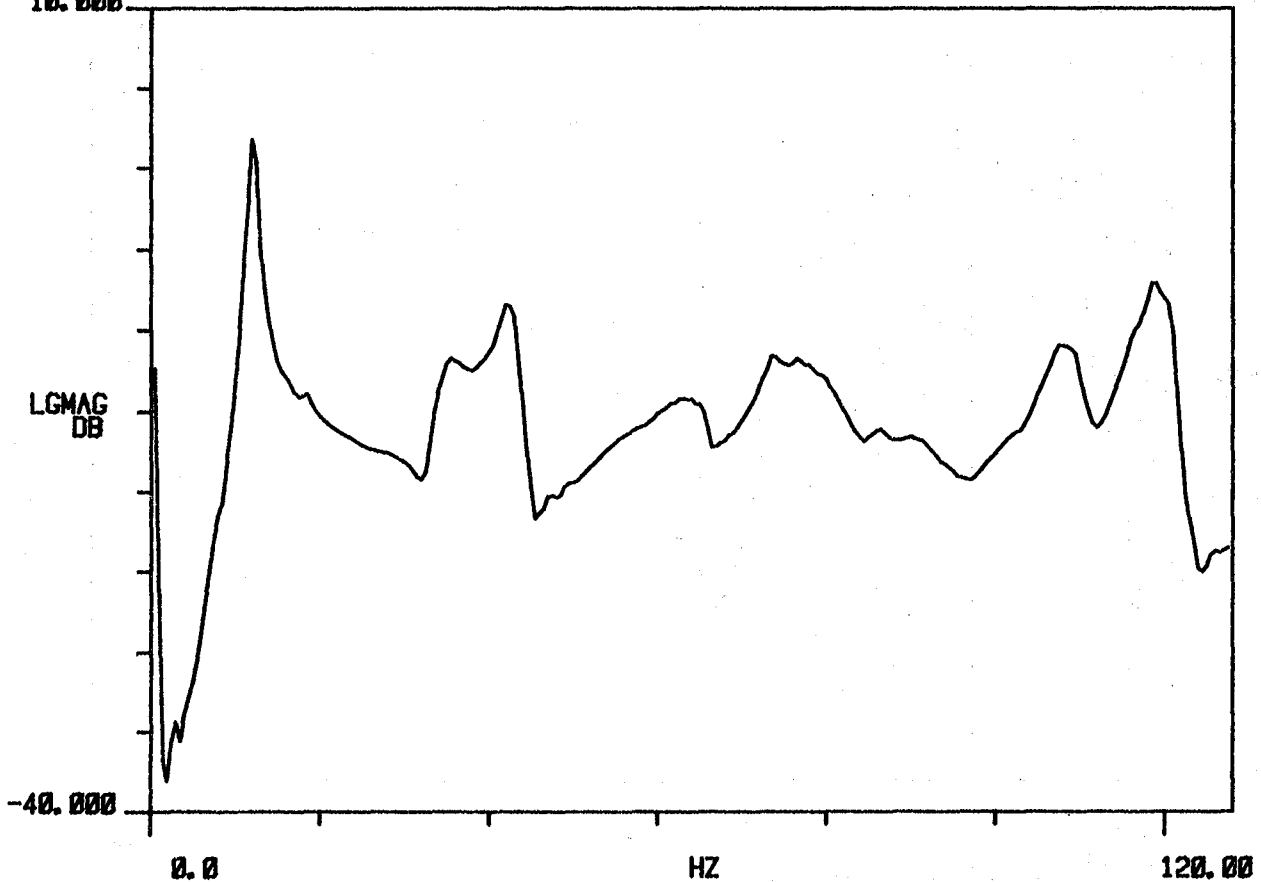
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.904	74.795	3.580	426.495	2.680
2	34.103	214.276	5.489	1.875	11.779
3	42.872	269.372	2.869	1.231	7.732
4	64.346	404.297	4.321	2.783	17.486
5	0.000	0.000	0.000	0.000	0.000
6	75.663	475.406	6.017	4.561	28.658
7	108.383	680.993	2.031	2.202	13.834
8	119.603	751.490	1.282	1.534	9.638

TRANS
10.000

R# 20

#A 325



FM5 BLADE 57. AC. POS. #1. 3/82

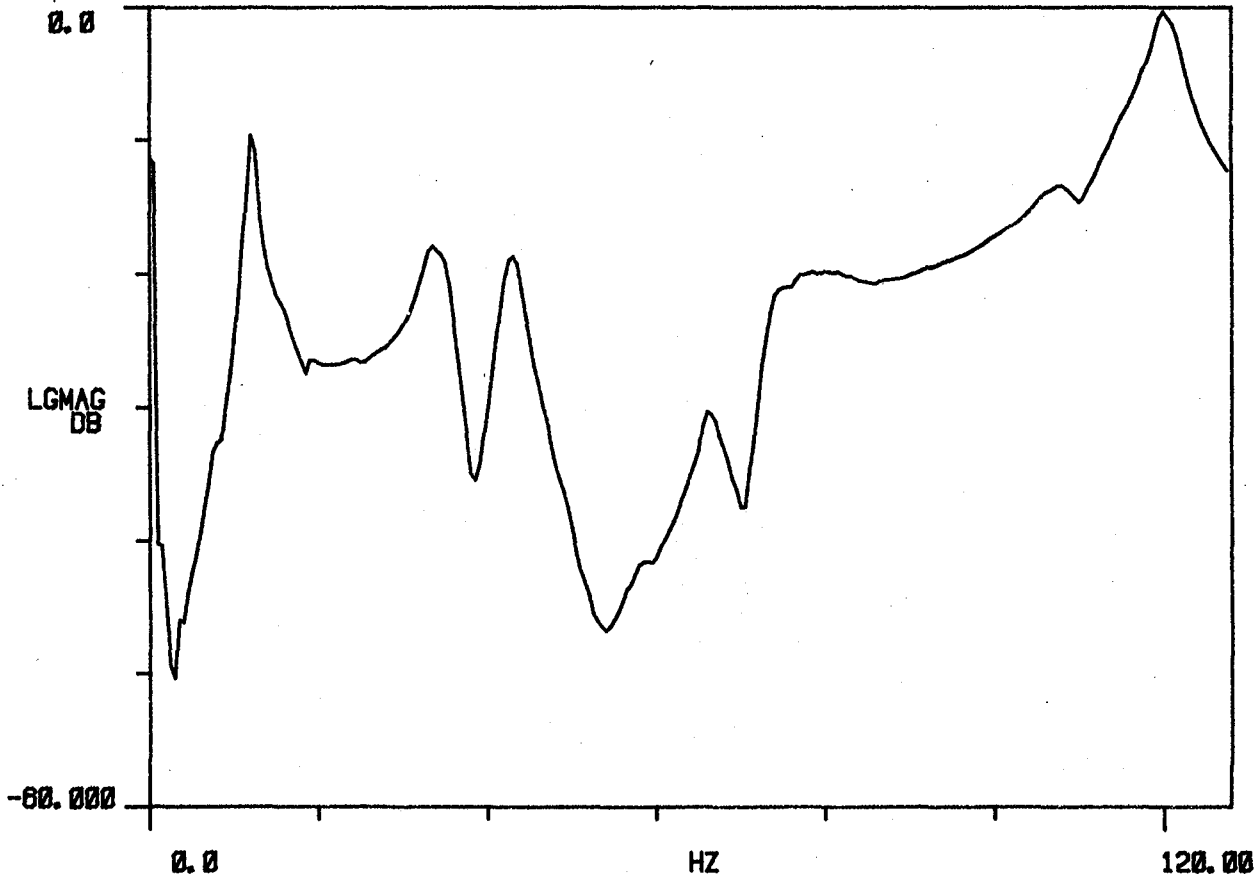
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.900	74.768	3.712	442.005	2.777
2	34.156	214.605	4.615	1.578	9.914
3	42.902	269.564	2.517	1.080	6.786
4	66.836	419.946	2.491	1.666	10.465
5	0.000	0.000	0.000	0.000	0.000
6	74.289	466.774	5.946	4.425	27.805
7	106.323	668.047	2.585	2.749	17.273
8	120.207	755.283	1.605	1.929	12.122

TRANS

R#: 21

#A: 325



FMS BLADE 57. ACC. POS. #2. 3/82

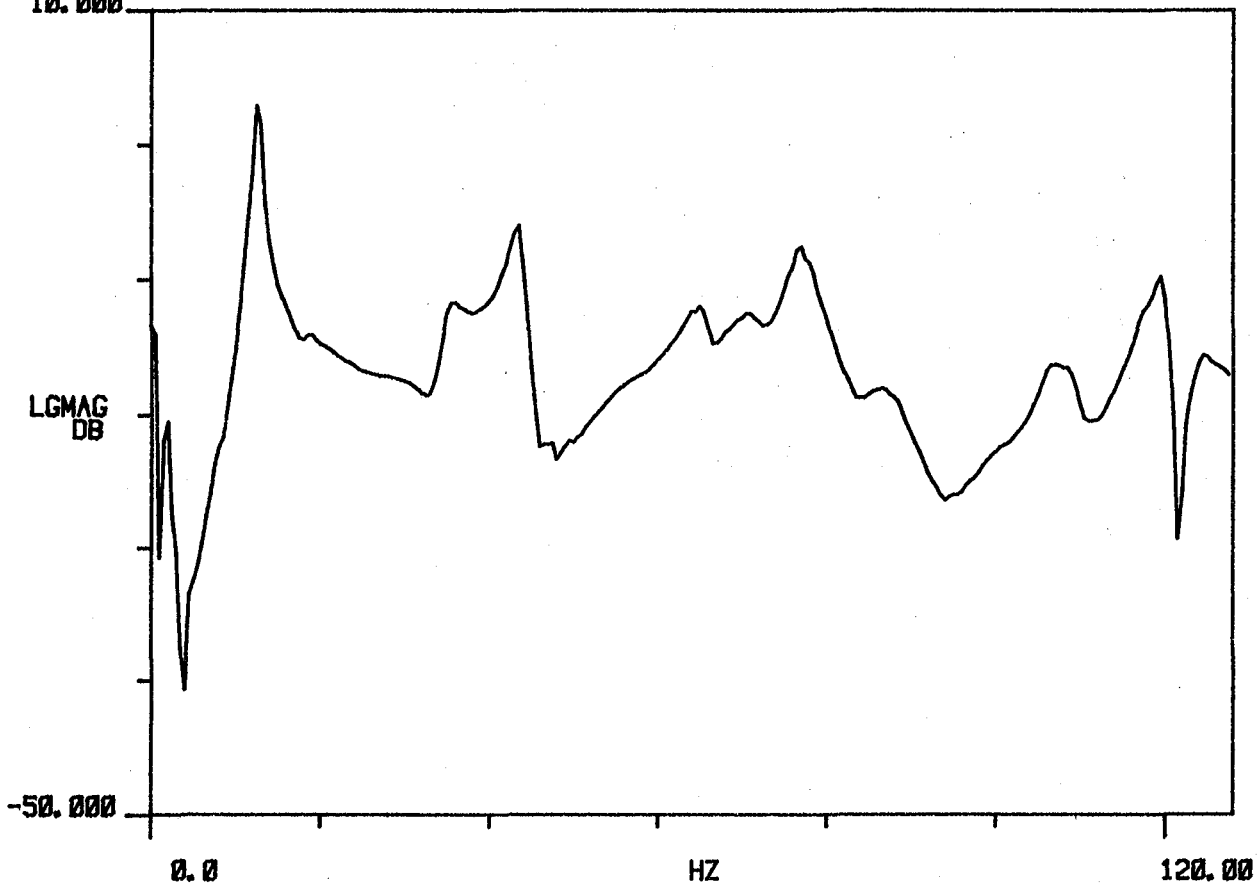
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.327	77.454	2.125	262.022	1.646
2	34.634	217.611	3.818	1.323	8.315
3	43.577	273.800	2.016	878.742	5.521
4	64.721	406.655	2.975	1.926	12.104
5	69.564	437.082	1.496	1.041	6.539
6	77.326	485.853	2.386	1.846	11.596
7	107.352	674.513	1.884	2.023	12.708
8	119.497	750.822	1.107	1.323	8.310

TRANS
10.000

R# 18

#A 325



FM5 BLADE 59. ACC. POS. #1. 3/82

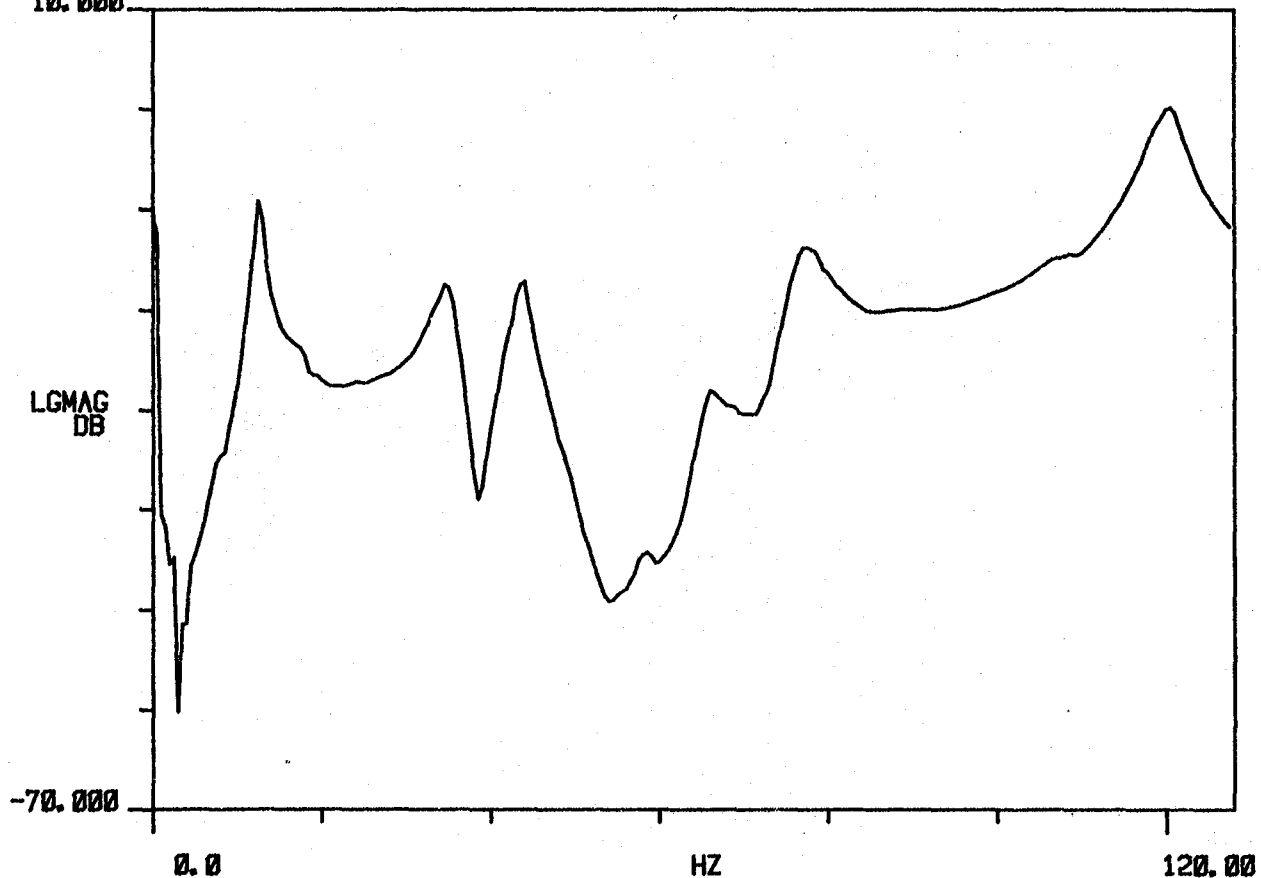
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.322	77.424	2.518	310.388	1.950
2	34.862	219.043	3.470	1.210	7.604
3	43.608	273.996	2.045	891.884	5.604
4	56.843	357.157	835.668	475.038	2.985
5	67.441	423.743	3.169	2.138	13.435
6	76.920	483.305	2.379	1.830	11.500
7	0.000	0.000	0.000	0.000	0.000
8	120.175	755.079	1.584	1.904	11.965

TRANS
10.000

R# 19

#A 325



FM5 BLADE 59. ACC. POS. #2. 3/82

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.314	77.370	2.850	351.028	2.206
2	33.947	213.295	6.751	2.297	14.433
3	42.649	267.971	2.752	1.174	7.378
4	64.093	402.705	4.958	3.182	19.993
5	0.000	0.000	0.000	0.000	0.000
6	76.425	480.193	5.319	4.071	25.576
7	107.250	673.869	2.188	2.347	14.745
8	118.665	745.595	1.433	1.701	10.685

TRANS
10.000

R# 16

#A 325



FM5 BLADE 62. ACC. POS. #1. 3/82

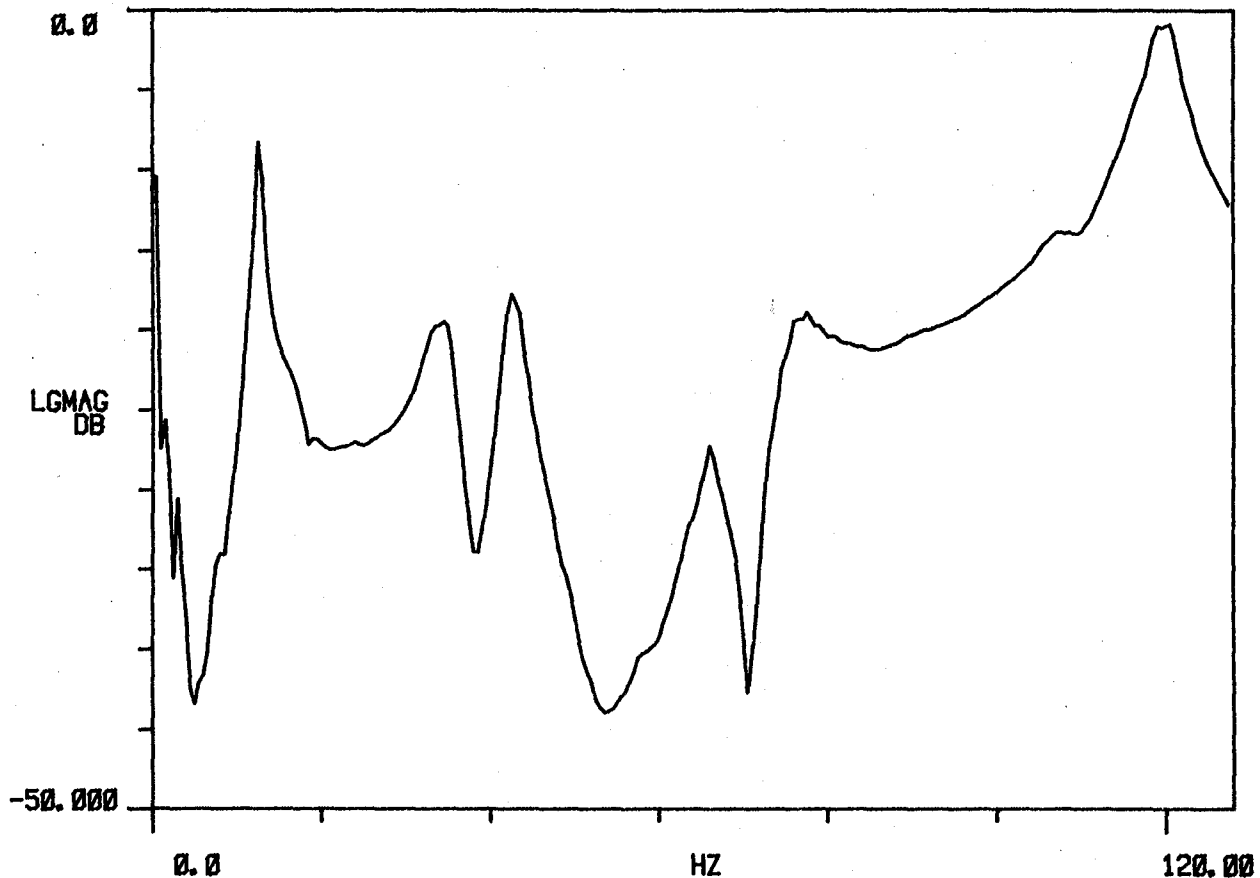
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.323	77.430	2.679	330.292	2.075
2	34.508	216.817	4.628	1.599	10.044
3	42.650	267.981	2.422	1.033	6.492
4	66.058	415.053	2.278	1.505	9.456
5	0.000	0.000	0.000	0.000	0.000
6	75.324	473.272	3.717	2.802	17.604
7	104.751	658.169	3.933	4.123	25.907
8	119.734	752.310	1.660	1.988	12.488

TRANS

R# 17

#A 325



FMS BLADE 62. ACC. POS. #2. 3/82

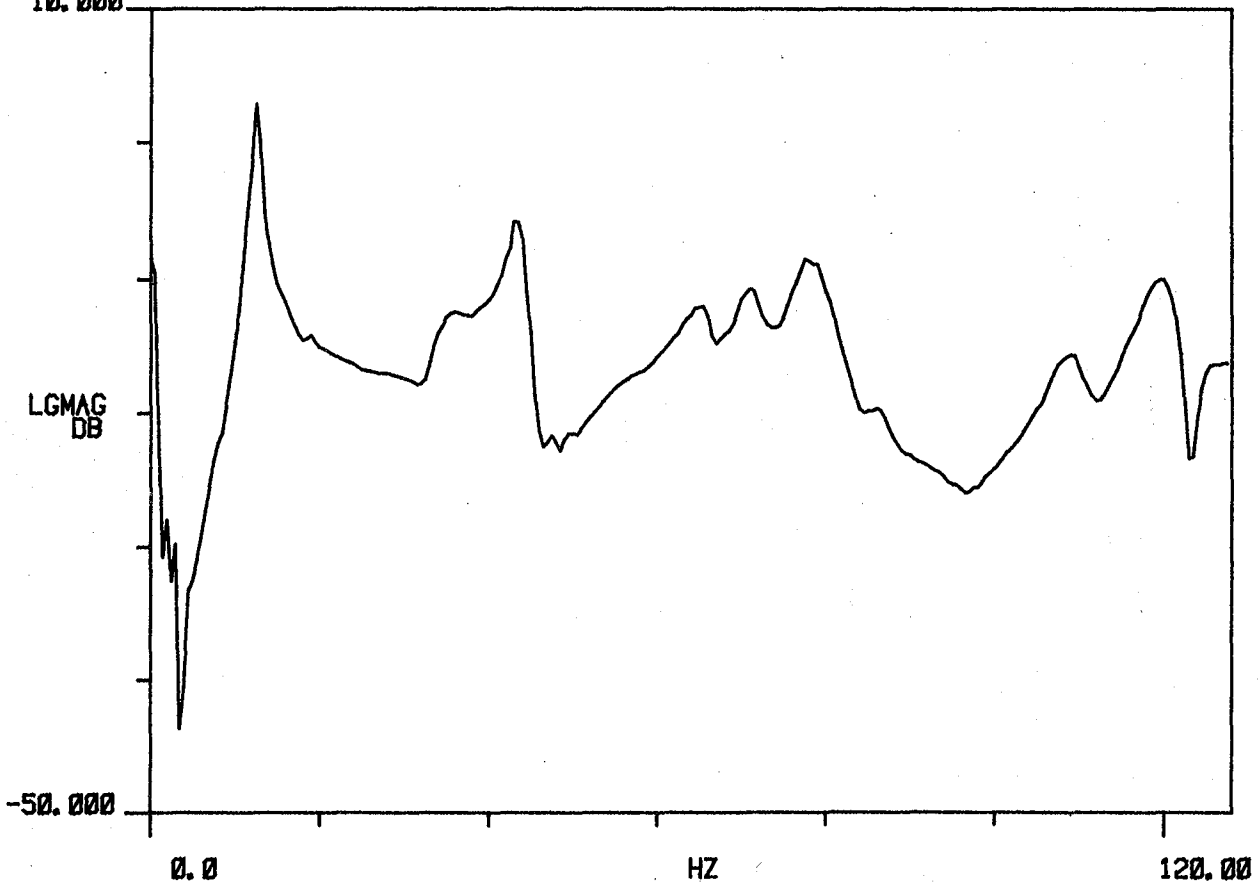
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.314	77.374	2.996	369.047	2.319
2	33.933	213.209	6.566	2.233	14.030
3	43.664	274.349	2.080	908.446	5.708
4	65.056	408.758	2.499	1.626	10.218
5	70.844	445.128	1.468	1.040	6.535
6	78.659	494.229	2.613	2.056	12.917
7	108.598	682.339	1.496	1.625	10.212
8	120.104	754.635	1.340	1.610	10.115

TRANS
10.000

R# 14

#A 325



FM5 BLADE 63. ACC. POS. #1. 3/82

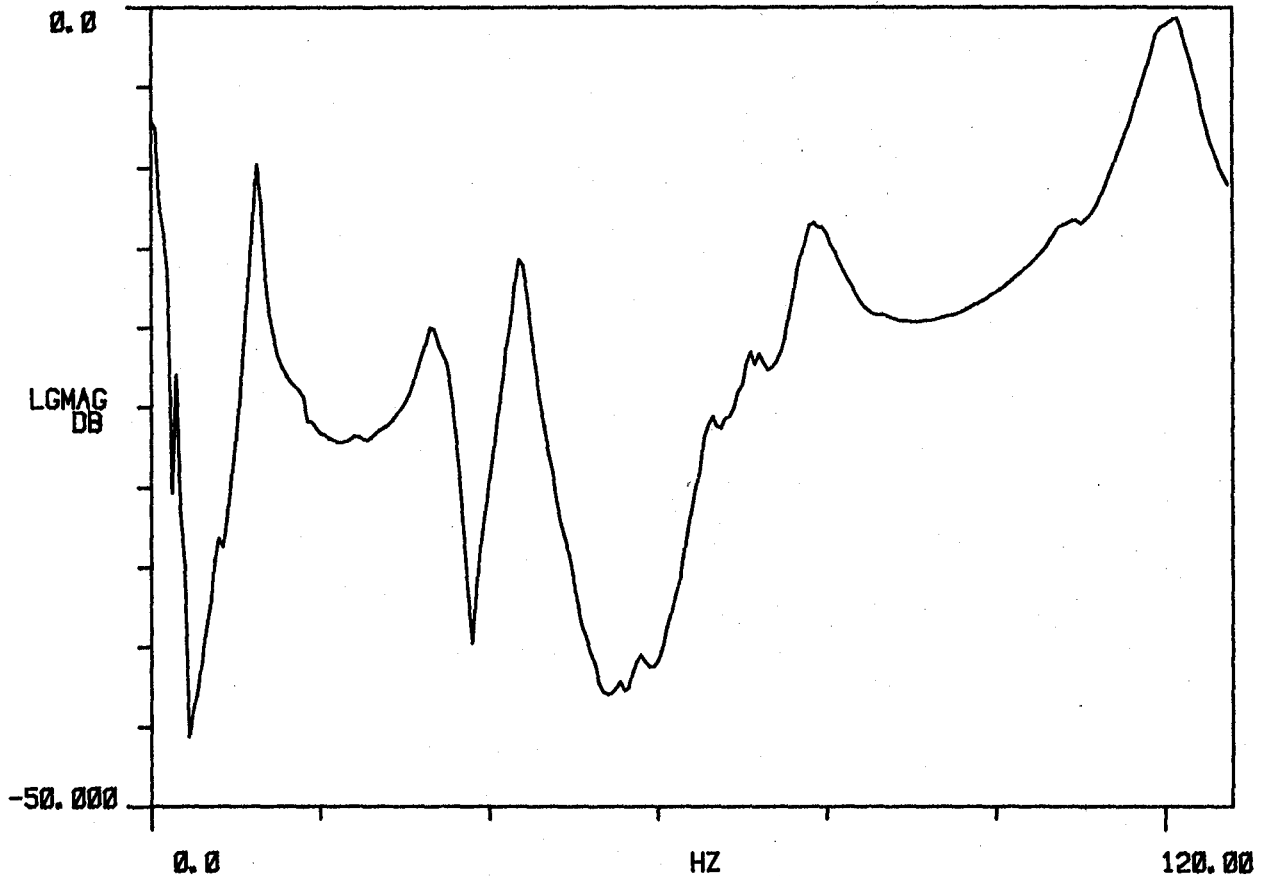
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.310	77.349	3.187	392.561	2.467
2	33.903	213.019	5.108	1.734	10.895
3	43.652	274.274	2.081	908.773	5.710
4	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000	0.000
6	78.106	490.755	2.974	2.324	14.601
7	108.376	680.945	-2.128	-2.306	-14.491
8	120.668	758.180	2.008	2.424	15.230

TRANS

R# 15

#A 325



FM5 BLADE 63. ACC. POS. #2. 3/82

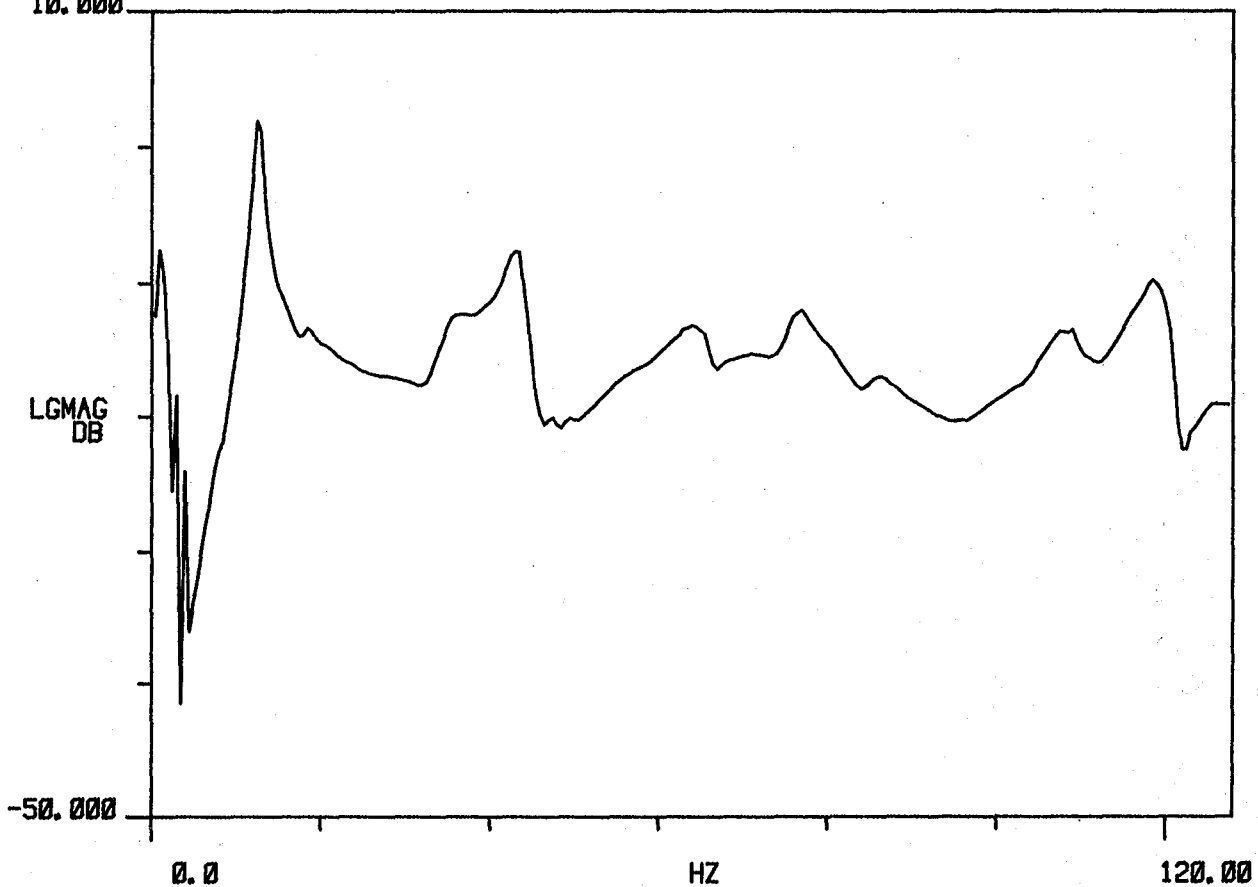
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.398	77.900	3.052	378.612	2.379
2	34.363	215.906	7.367	2.538	15.949
3	43.494	273.281	2.715	1.181	7.422
4	64.473	405.095	3.440	2.219	13.945
5	0.000	0.000	0.000	0.000	0.000
6	77.280	485.563	2.440	1.886	11.850
7	107.904	677.983	2.372	2.560	16.085
8	119.468	750.643	1.296	1.548	9.729

TRANS
10.000

R# 12

#A 325



FMS BLADE 64. ACC. POS. #1. 3/82

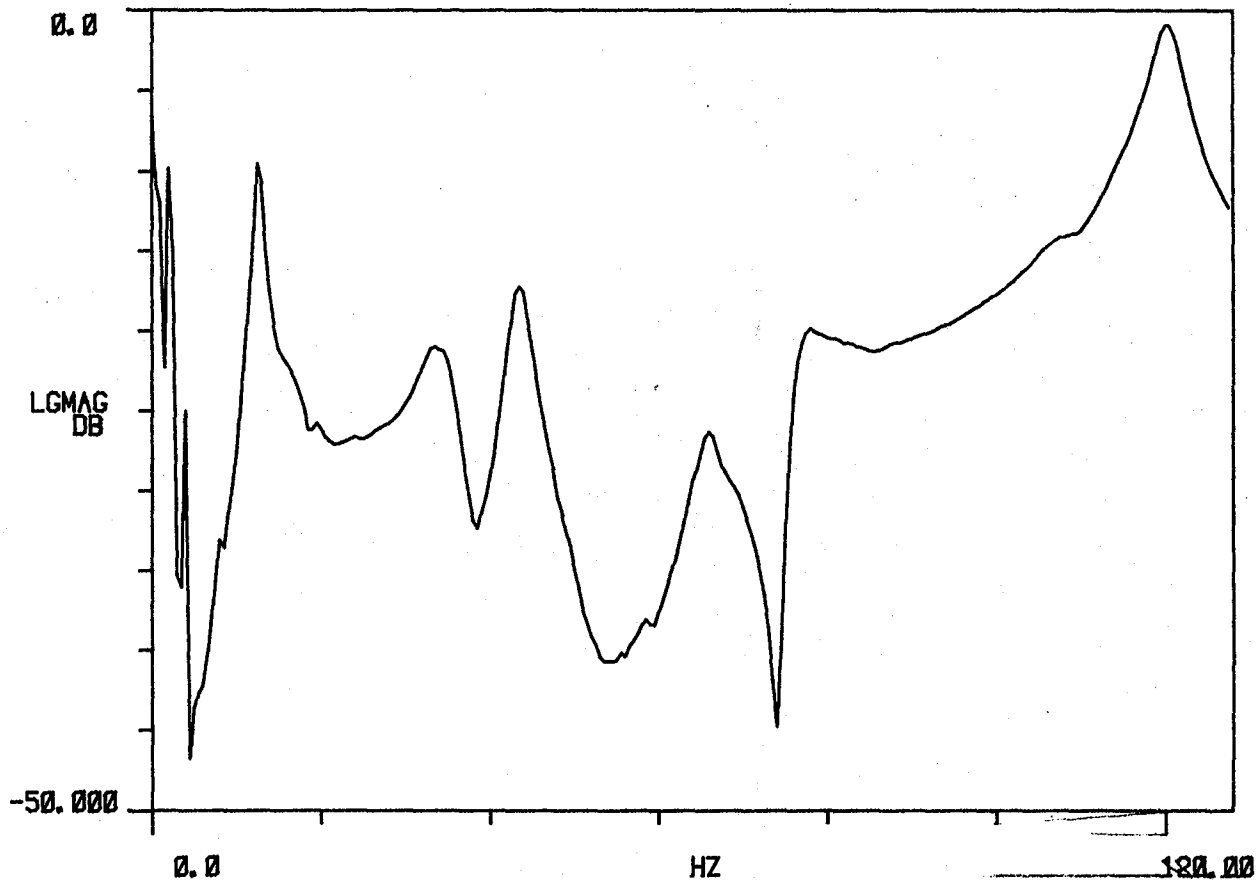
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N		D A M P I N G		
	HZ	R/S	γ	HZ	R/S
1	12.384	77.810	3.244	401.995	2.526
2	34.331	215.709	6.226	2.142	13.457
3	43.502	273.330	2.560	1.114	6.999
4	65.709	412.864	3.142	2.066	12.980
5	0.000	0.000	0.000	0.000	0.000
6	76.284	479.309	3.081	2.352	14.775
7	102.594	644.614	1.599	1.640	10.307
8	120.206	755.274	1.692	2.034	12.782

TRANS

R#: 13

#A: 325



FM5 BLADE 64. ACC. POS. #2. 3/82

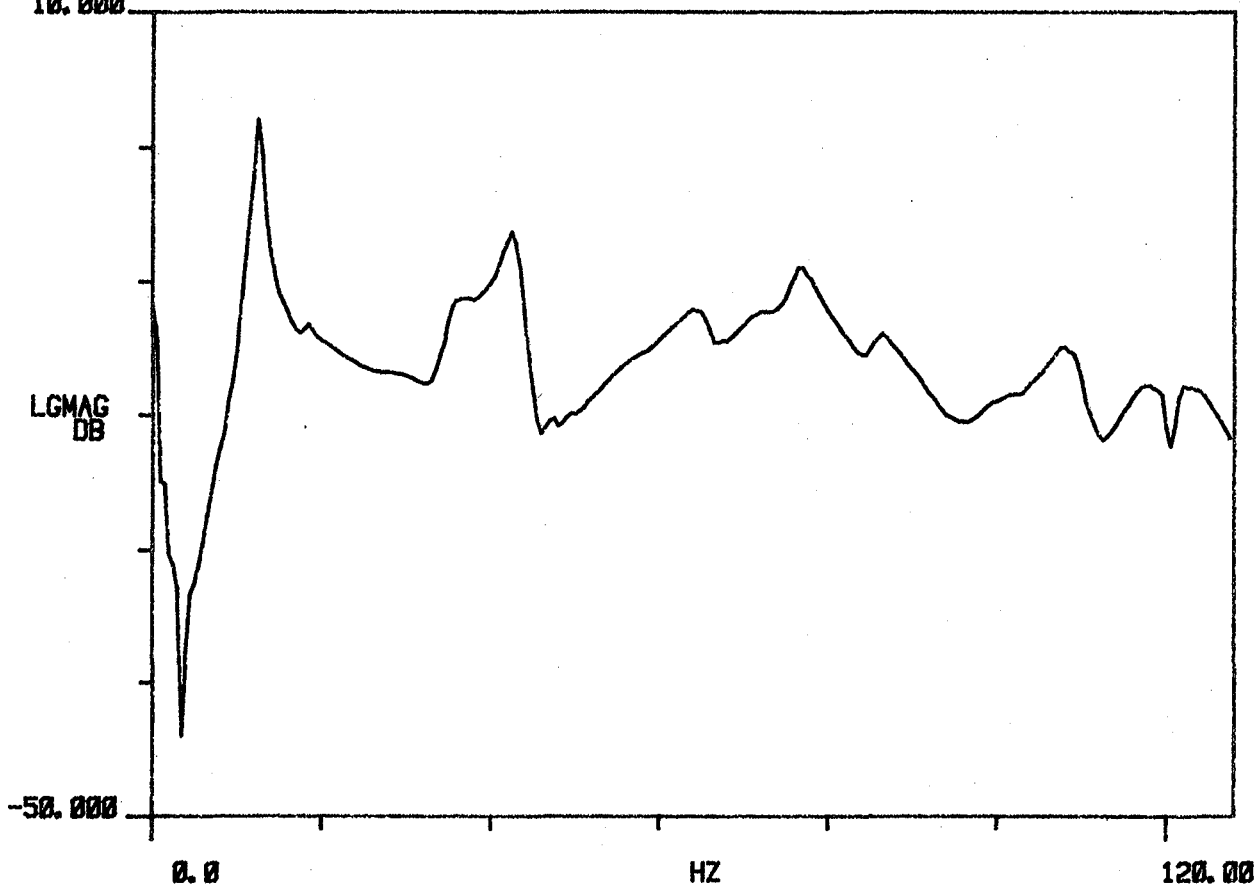
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.294	77.248	2.779	341.787	2.148
2	34.559	217.141	6.588	2.275	14.292
3	42.944	269.825	2.682	1.152	7.239
4	64.598	405.883	3.761	2.431	15.277
5	77.302	485.702	3.028	2.342	14.715
6	87.388	549.082	2.449	2.141	13.452
7	108.841	683.866	2.192	2.387	14.997

TRANS
10.000

R# 6

#A 325



FM5 BLADE 88. ACC. POS. #1. 3/82

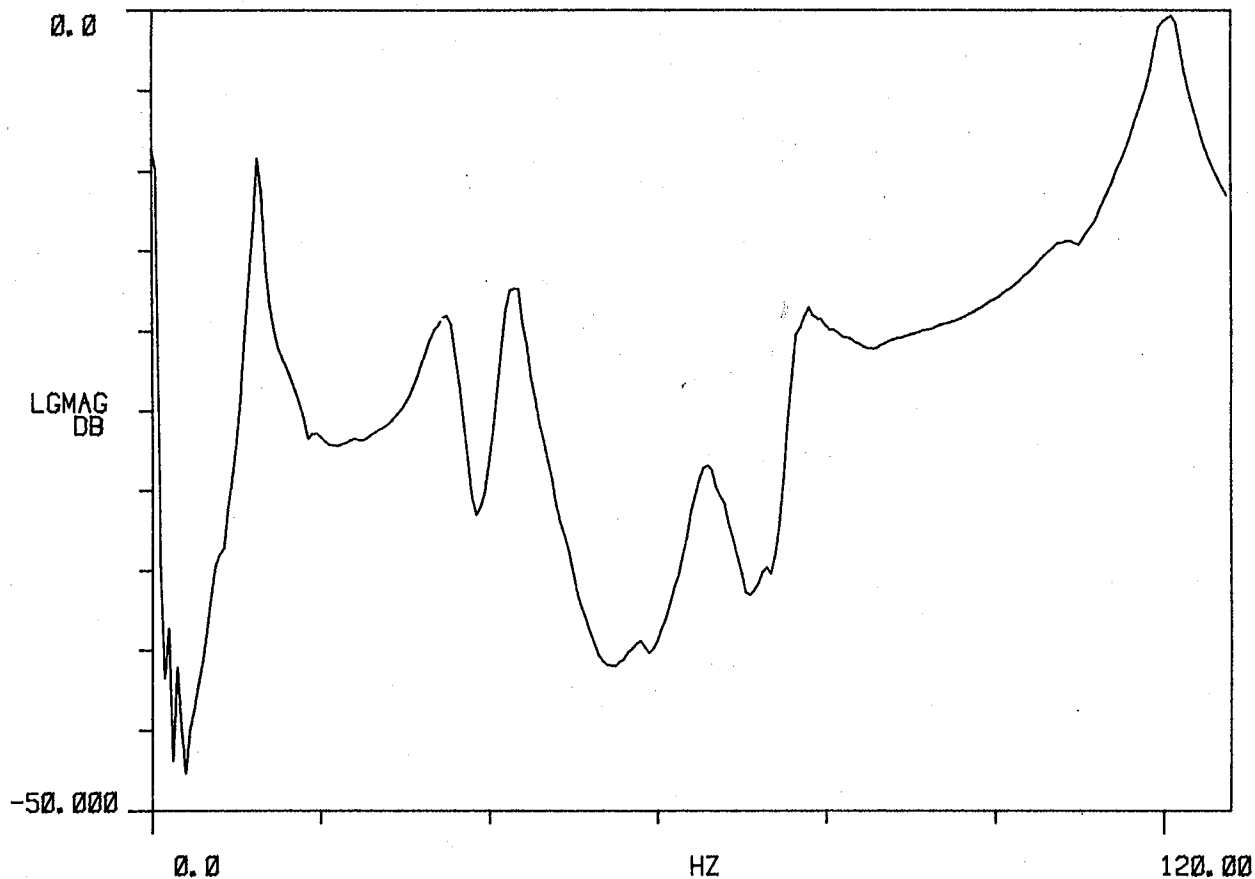
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.289	77.213	2.963	364.218 m	2.288
2	35.024	220.064	4.874	1.709	10.740
3	42.871	269.366	2.627	1.126	7.078
4	65.693	412.760	2.689	1.767	11.104
5	0.000	0.000	0.000	0.000	0.000
6	76.546	480.950	2.872	2.199	13.819
7	104.997	659.717	299.020 m	313.964 m	1.973
8	120.513	757.206	1.466	1.767	11.102

TRANS

R# 7

#A 325



FM5 BLADE 66. ACC. POS. #2. 3/82

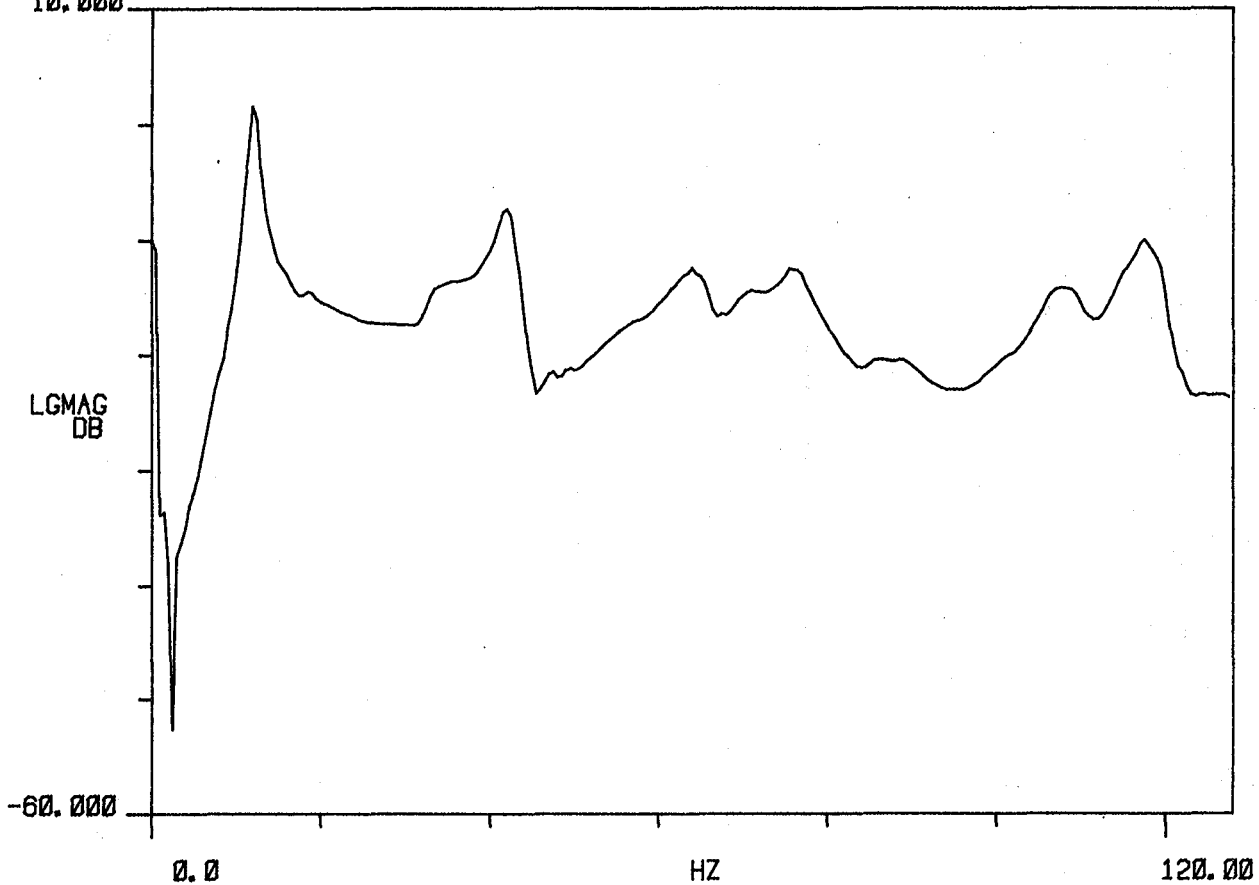
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.860	74.519	2.964	351.685	2.210
2	32.024	201.212	8.692	2.794	17.556
3	42.298	265.765	2.573	1.089	6.840
4	64.313	404.092	3.209	2.065	12.972
5	0.000	0.000	0.000	0.000	0.000
6	76.923	483.323	3.112	2.395	15.047
7	107.681	676.578	2.625	2.827	17.765
8	118.341	743.558	1.438	1.701	10.691

TRANS
10.000

R# 8

#A 325



FMS BLADE 68. ACC. POS. #1. 3/82

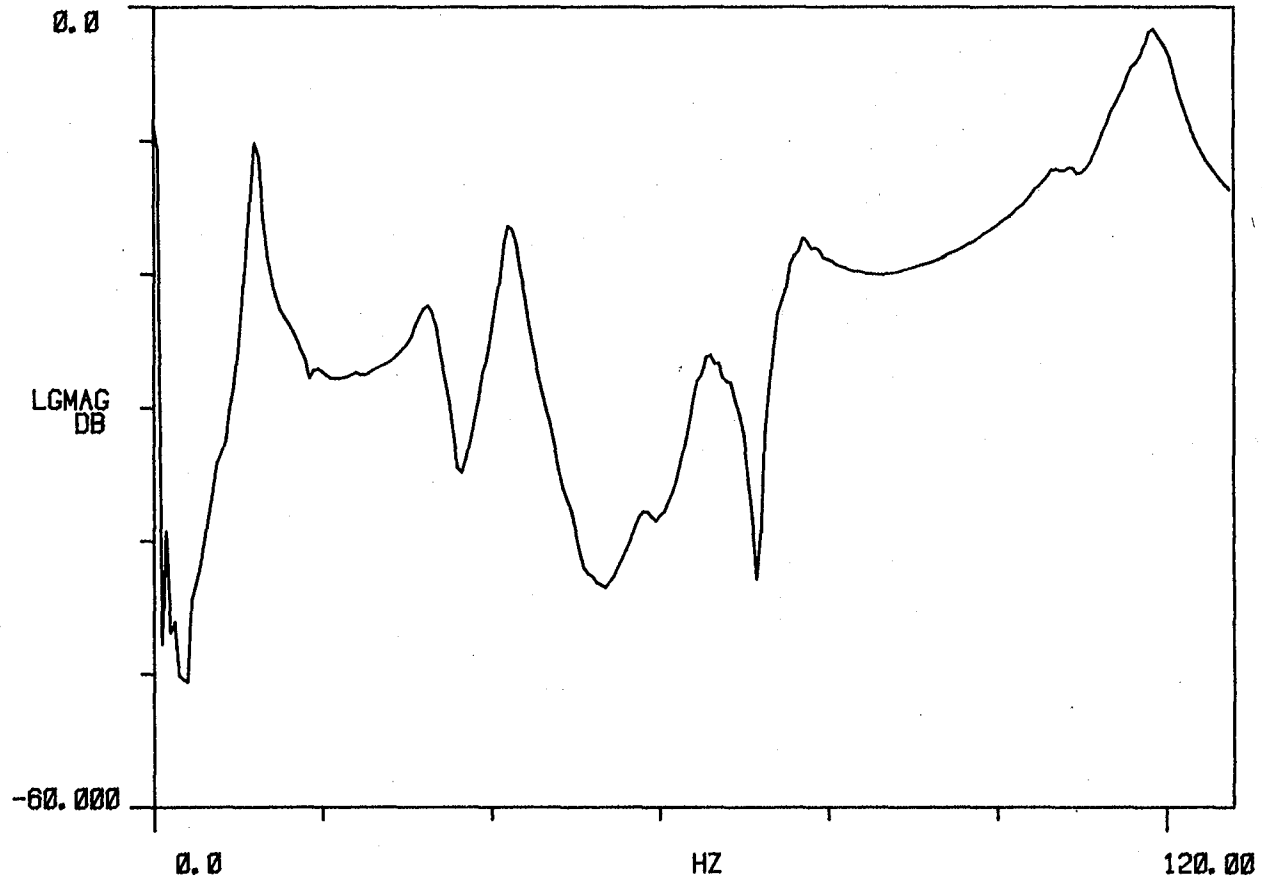
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.861	74.526	3.093	367.050	2.306
2	32.919	206.839	4.670	1.539	9.669
3	42.271	265.594	2.247	950.021	5.969
4	66.326	416.740	3.296	2.187	13.743
5	0.000	0.000	0.000	0.000	0.000
6	75.655	475.354	3.387	2.564	16.110
7	105.211	661.060	3.296	3.470	21.801
8	118.702	745.824	2.113	2.509	15.764

TRANS

R# 9

#A 325



FM5 BLADE 68. ACC. POS. #2. 3/82

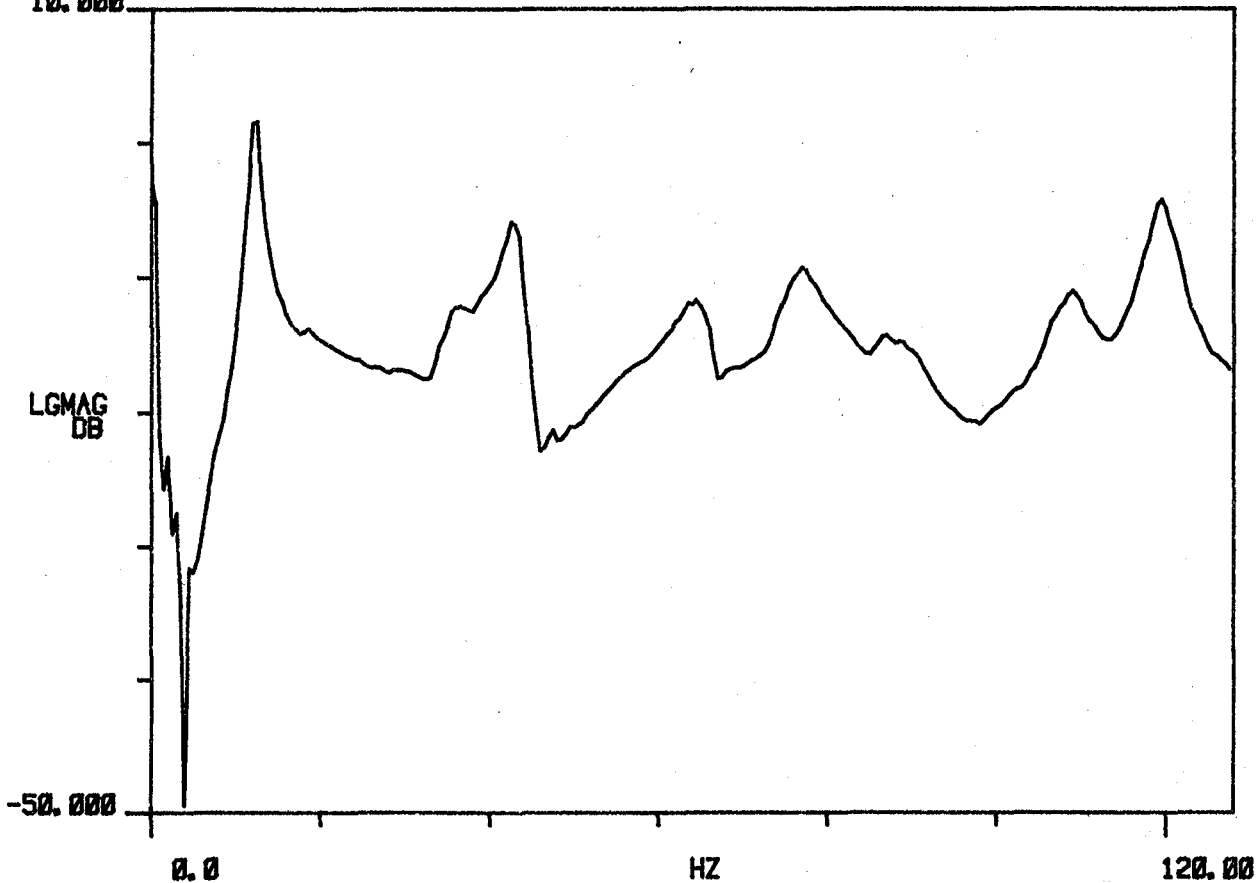
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.119	76.148	3.634	440.667	2.789
2	34.901	219.287	6.023	2.106	13.231
3	43.127	270.977	2.491	1.075	6.753
4	64.742	406.786	3.135	2.031	12.758
5	0.000	0.000	0.000	0.000	0.000
6	76.869	482.979	3.243	2.494	15.672
7	108.327	680.639	2.241	2.428	15.258
8	119.880	753.226	997.481	1.196	7.514

TRANS
10.000

R# 33

#A 325



FM5 BLADE 75. ACC. POS. #1. 3/82

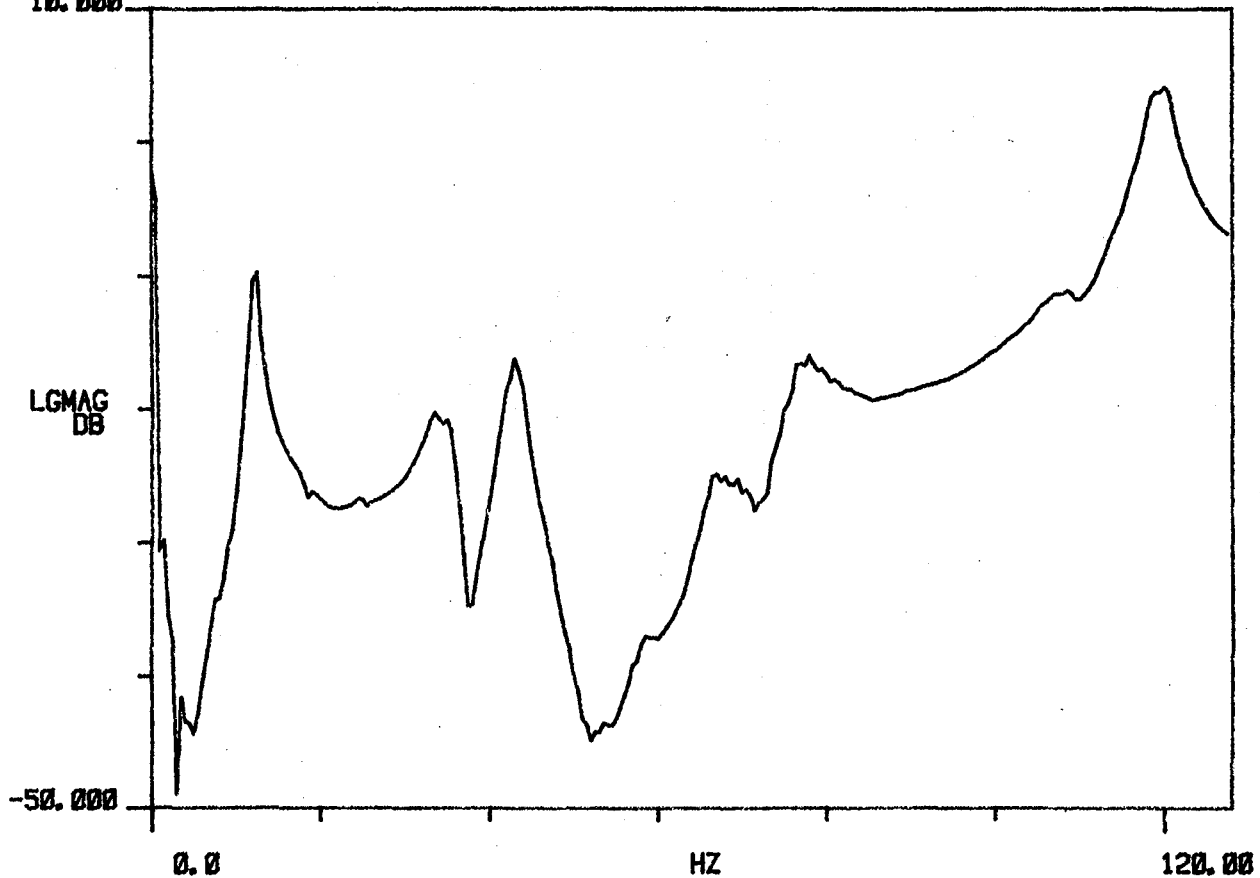
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.150	76.344	3.645	443.143	2.784
2	34.620	217.527	5.200	1.603	11.327
3	43.064	270.579	2.390	1.033	6.493
4	68.479	430.263	4.317	2.959	18.590
5	0.000	0.000	0.000	0.000	0.000
6	76.518	480.763	3.313	2.536	15.935
7	105.994	665.983	1.324	1.404	8.819
8	119.496	750.812	1.411	1.686	10.595

TRANS
10.000

R# 5

#A 325



FM5 BLADE 75. ACC. POS. #2. 3/82

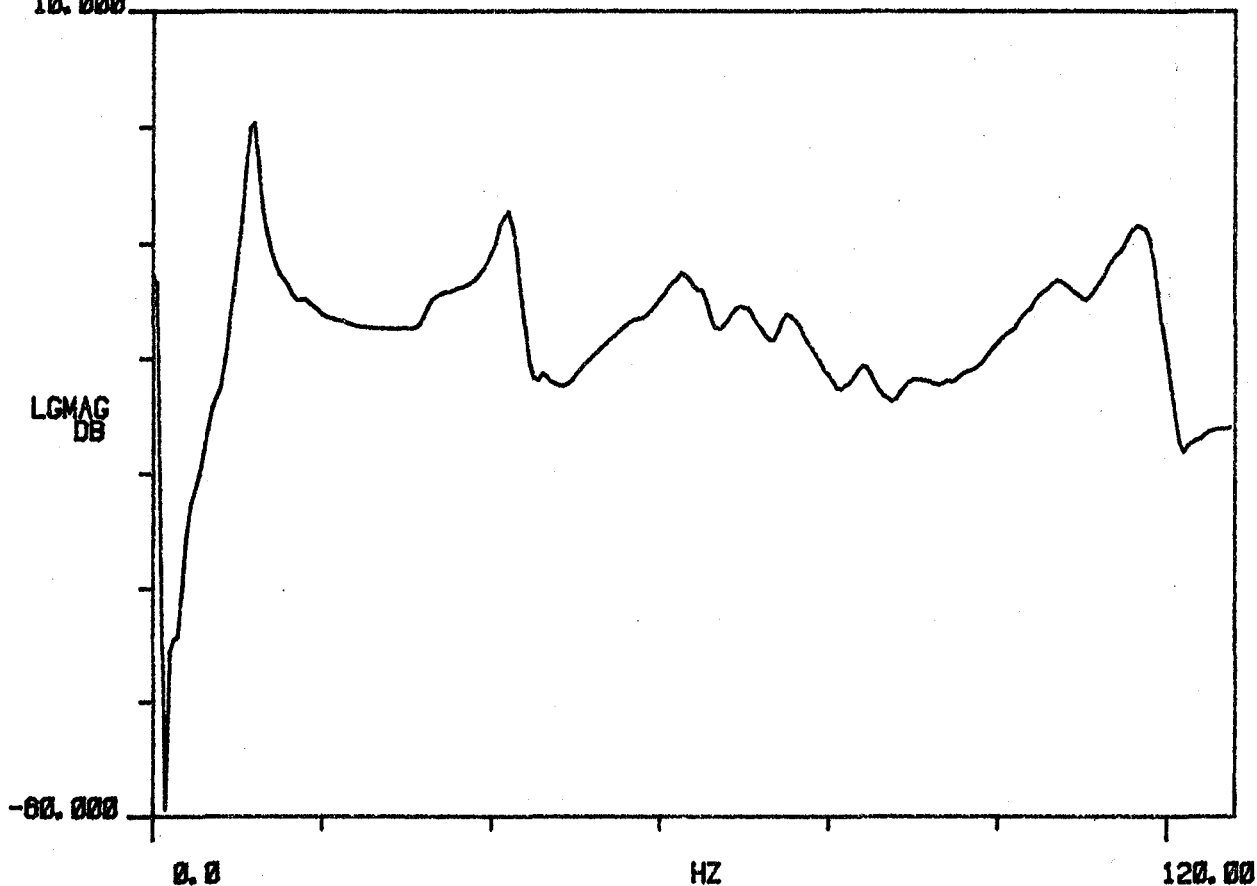
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.505	72.289	3.689	424.719	2.689
2	31.704	199.201	10.499	3.347	21.030
3	42.181	265.028	2.546	1.074	8.750
4	63.050	396.158	4.099	2.587	16.253
5	70.510	443.029	1.682	1.186	7.452
6	76.271	479.225	2.270	1.732	10.883
7	106.540	669.412	3.511	3.743	23.519
8	117.234	736.604	1.465	1.718	10.793

TRANS
10.000

R# 3

#A 325



FM4 BLADE 19. AC. POS. #1. 3/31/82

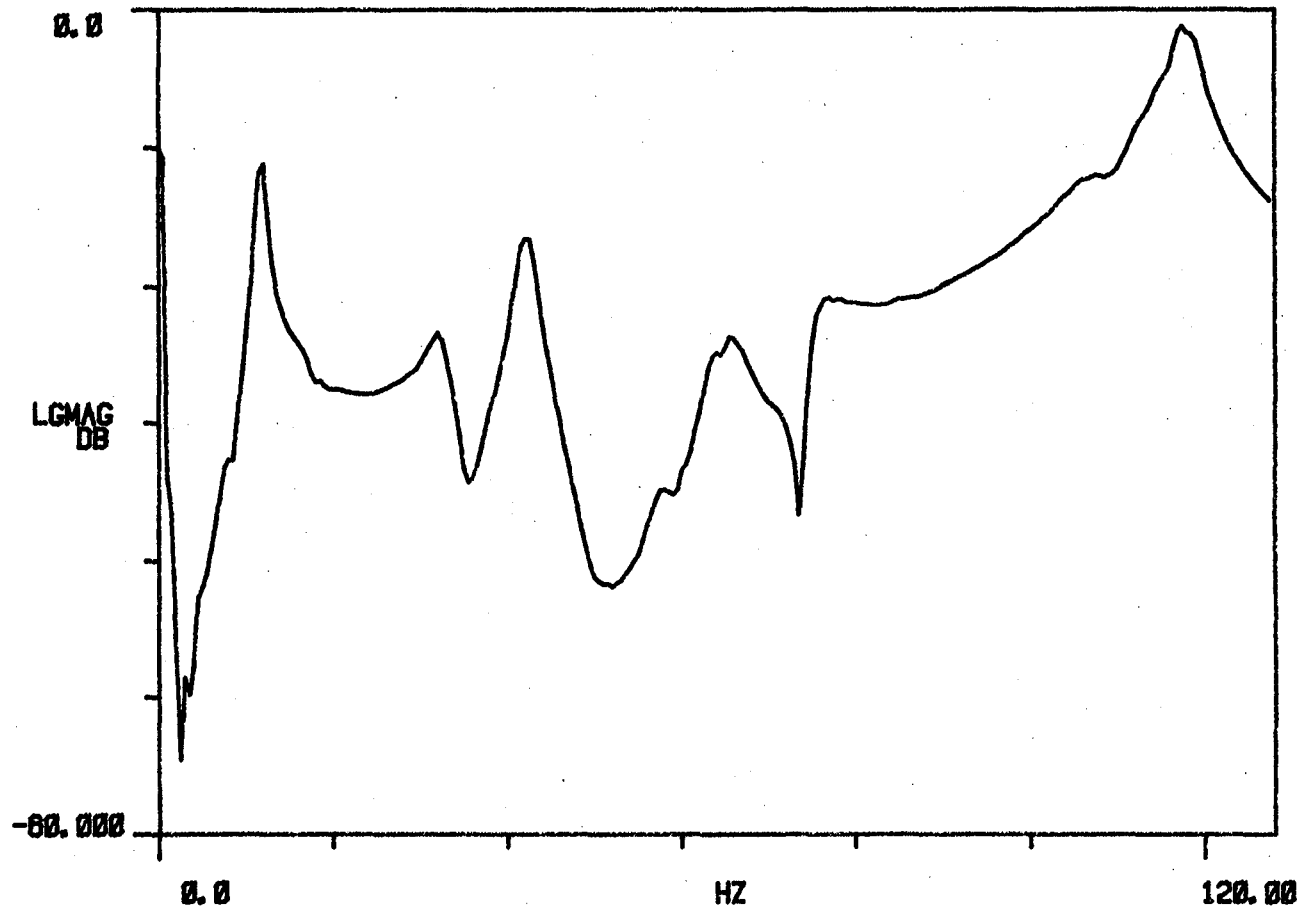
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.518	72.389	3.787	427.243	2.684
2	32.843	205.103	4.846	1.518	9.539
3	42.144	264.796	2.389	1.007	6.327
4	64.996	408.394	3.717	2.418	15.190
5	0.000	0.000	0.000	0.000	0.000
6	74.816	470.082	2.684	1.994	12.529
7	103.866	652.611	3.876	4.029	25.314
8	117.887	740.707	1.786	2.106	13.230

TRANS

R# 4

#A 325



FM4 BLADE 19. ACC. POS. #2. 3/31/82

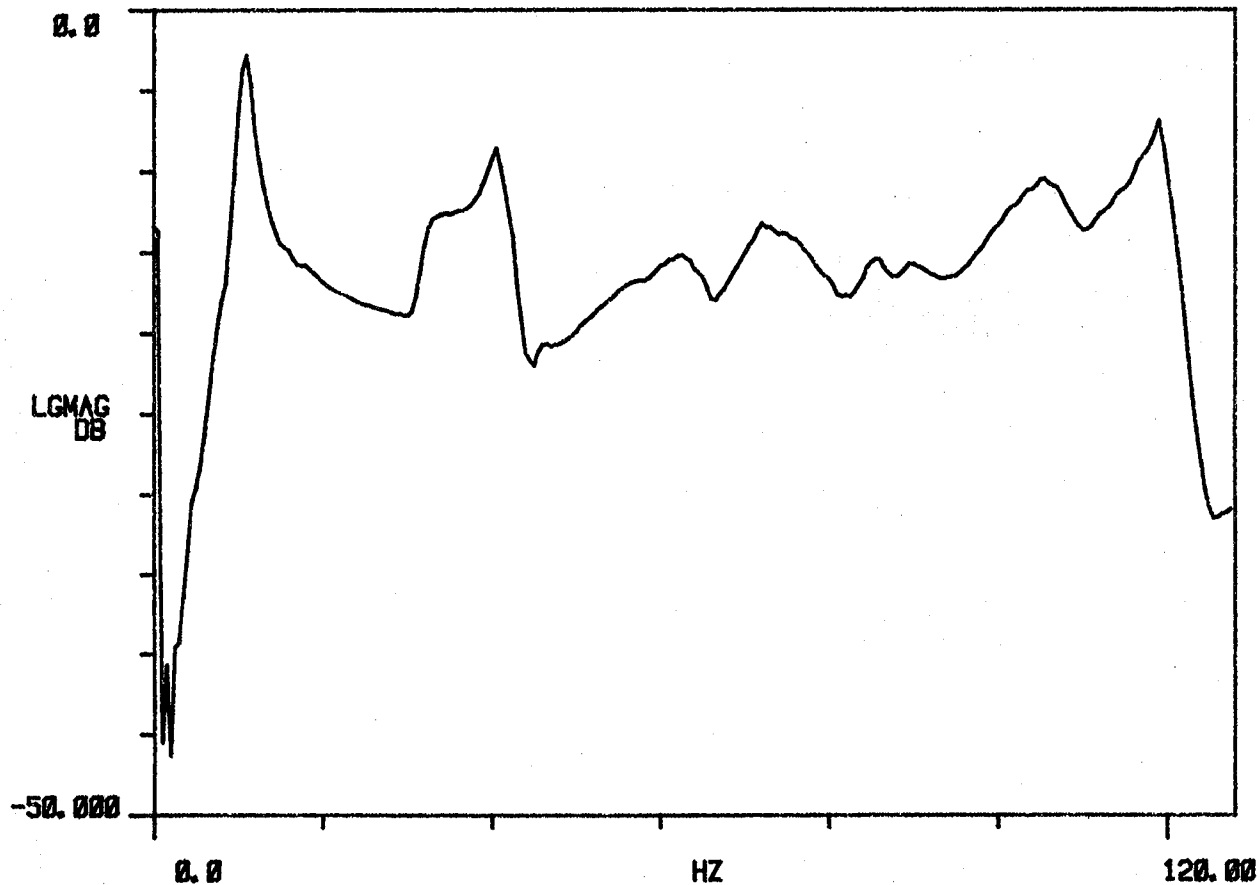
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	X	HZ	R/S
1	10.597	66.588	5.590	593.348	3.728
2	31.349	196.969	7.882	2.478	15.573
3	40.945	257.267	3.621	1.484	9.322
4	62.691	393.898	4.381	2.699	16.956
5	0.000	0.000	0.000	0.000	0.000
6	72.670	458.598	5.677	4.132	25.985
7	105.636	663.728	4.403	4.656	29.252
8	110.114	748.415	1.539	1.833	11.519

TRANS

R# 1

#A 325



FM4 BLADE 23. ACC. POS. #1. 3/31/82

FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.614	66.667	5.783	614.845	3.863
2	32.184	202.216	5.352	1.725	10.837
3	41.009	257.666	2.840	1.165	7.322
4	66.131	415.511	3.361	2.224	13.974
5	0.000	0.000	0.000	0.000	0.000
6	72.721	456.919	5.891	4.291	26.964
7	102.812	645.984	4.347	4.473	28.107
8	119.487	750.759	1.421	1.698	10.666

TRANS

R# 2

#A 325

0.0

LG MAG
DB

-60.000

0.0

HZ

120.00

FM4 BLADE 23. ACC. POS. #2. 3/31/82

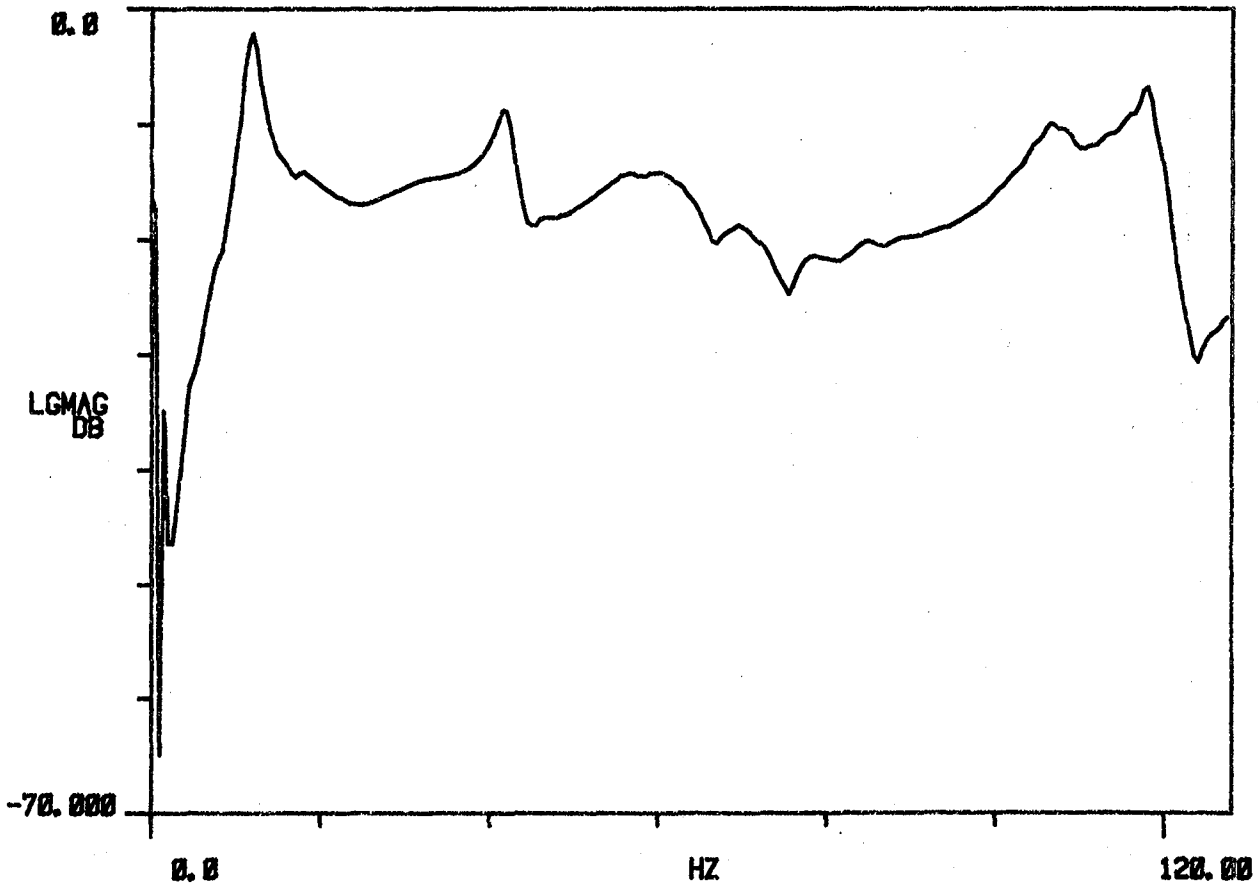
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.739	73.756	5.545	851.941	4.898
2	0.000	0.000	0.000	0.000	0.000
3	42.110	284.585	2.468	1.040	8.593
4	60.473	379.966	9.821	5.968	37.499
5	0.000	0.000	0.000	0.000	0.000
6	72.353	454.606	2.323	1.681	10.562
7	106.783	670.937	3.061	3.270	20.544
8	118.254	743.013	1.402	1.659	10.421

TRANS

R# 9

#A 325



FM4 BLADE 26. ACC. POS. #1. 3/31/82

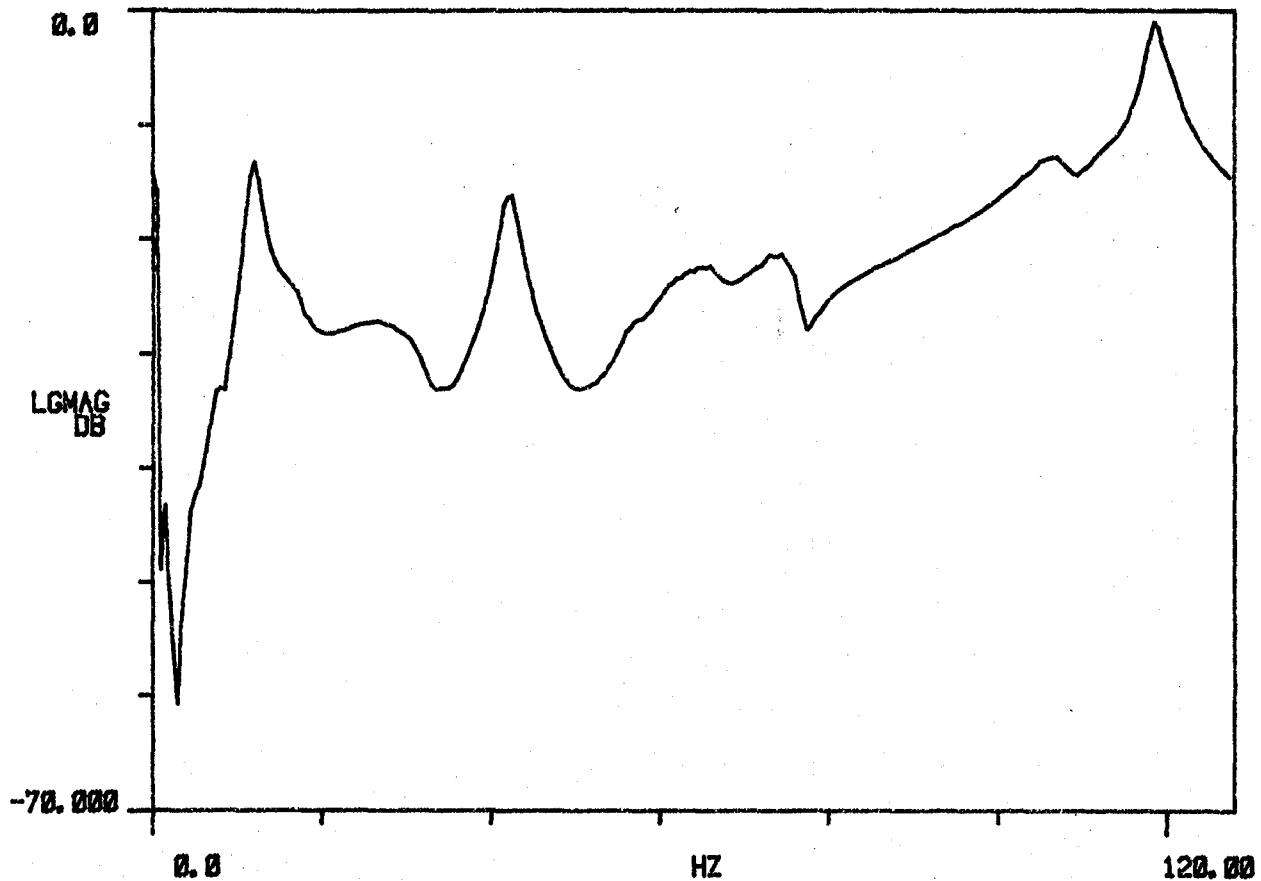
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.742	73.778	5.657	665.302	4.180
2	29.745	186.891	14.292	4.295	26.988
3	42.215	265.243	2.303	972.618	6.111
4	63.429	398.539	8.653	5.509	34.614
5	0.000	0.000	0.000	0.000	0.000
6	75.126	472.828	3.267	2.456	15.431
7	105.695	664.181	2.903	3.070	19.268
8	118.694	745.778	1.233	1.464	9.198

TRANS

R# 10

#A 325



FM4 BLADE 26. ACC. POS. #2. 3/31/82

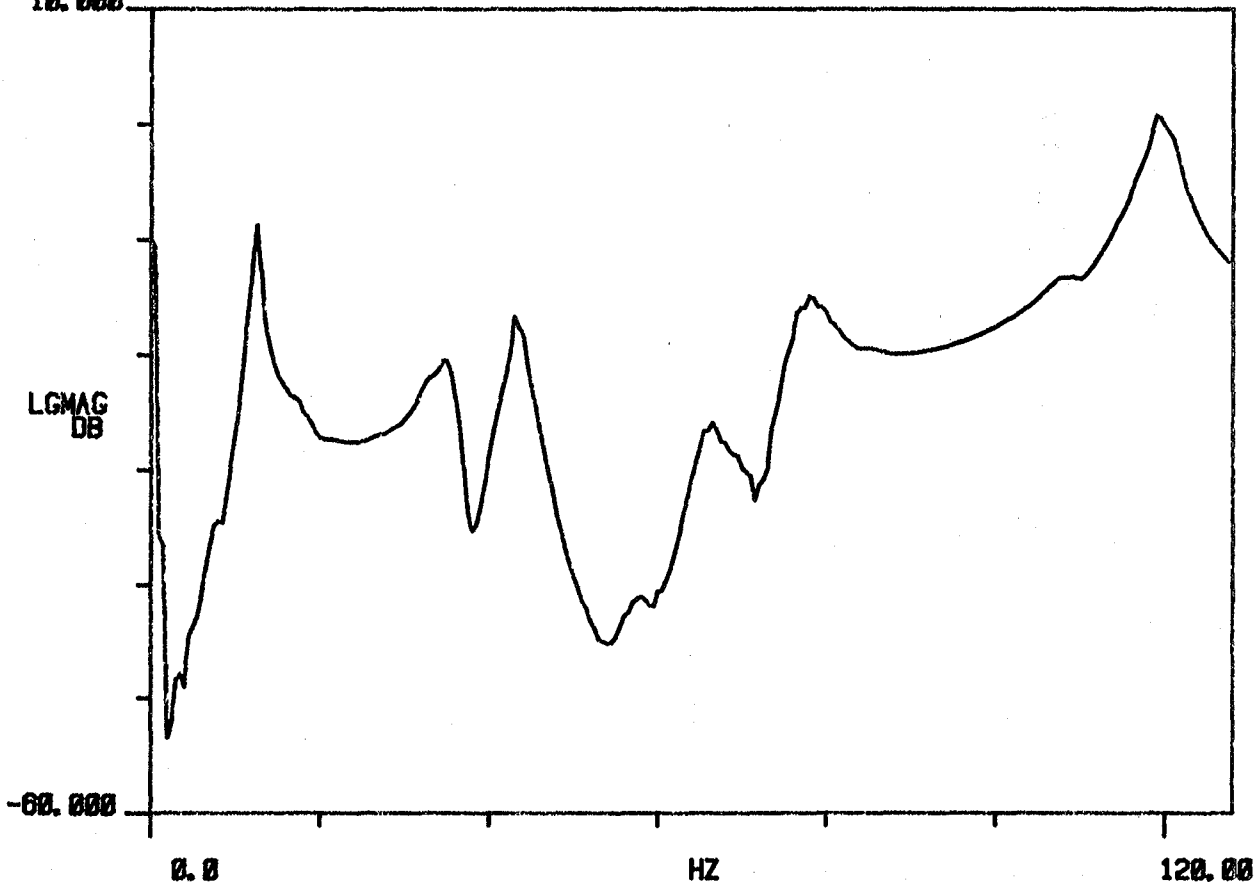
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	Z	HZ	R/S
1	12.270	77.093	2.997	367.919	2.312
2	35.076	220.387	4.656	1.635	10.273
3	43.340	272.314	2.148	931.230	5.851
4	66.486	417.744	3.528	2.347	14.749
5	0.000	0.000	0.000	0.000	0.000
6	77.112	484.507	2.840	2.191	13.767
7	105.806	664.802	3.327	3.522	22.128
8	119.507	750.887	1.492	1.783	11.203

TRANS
10.000

R# 8

#A 325



FM4 BLADE 29. ACC. POS. #2. 3/31/82

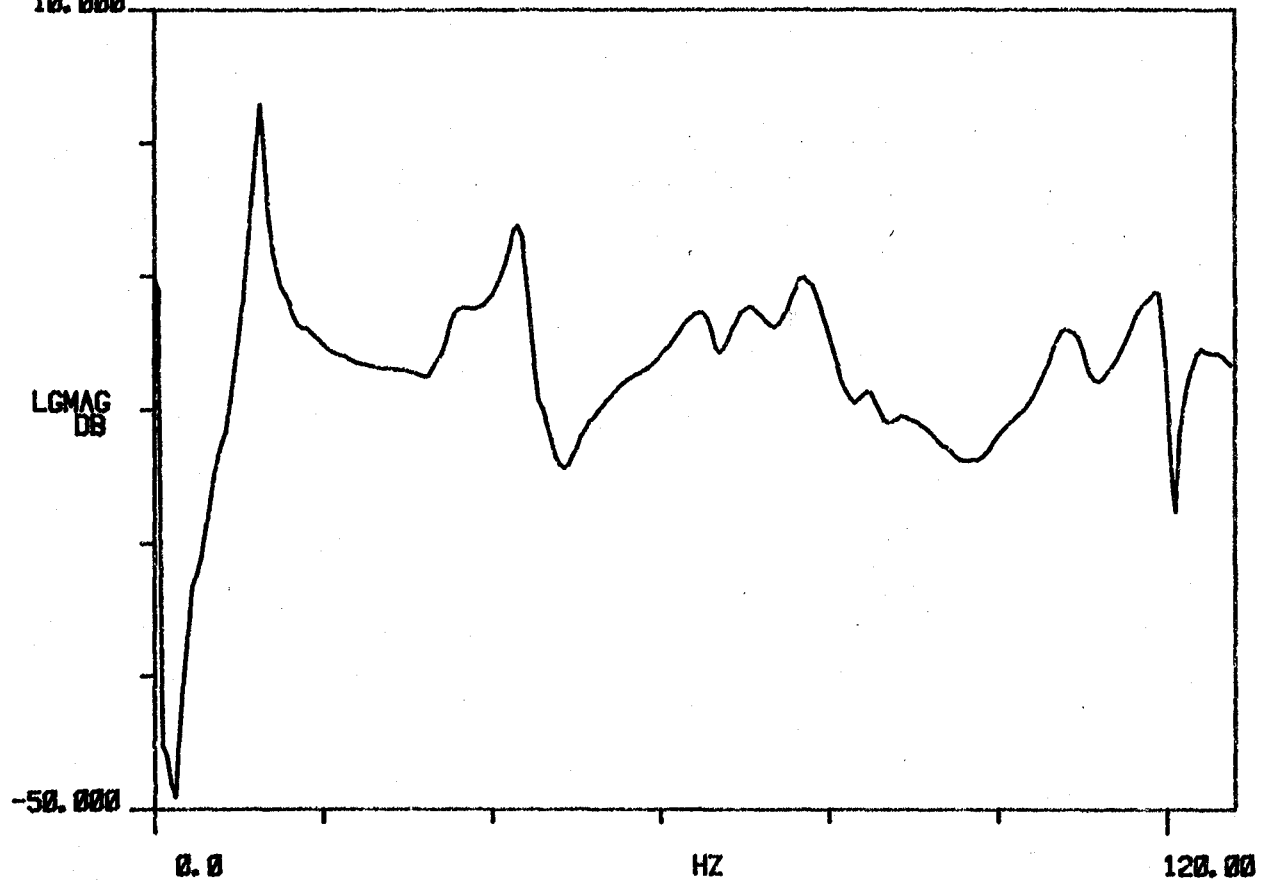
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.267	77.077	2.967	364.132	2.268
2	34.711	218.093	6.596	2.295	14.418
3	43.236	271.662	2.308	998.235	6.272
4	64.437	404.869	3.199	2.063	12.959
5	69.985	439.226	2.196	1.536	9.648
6	77.740	488.456	2.568	1.997	12.546
7	108.115	679.304	1.805	1.952	12.265
8	118.795	746.408	1.169	1.389	6.725

TRANS
10.000

R# 7

#A 325



FM4 BLADE 29. ACC. POS. #1. 3/31/82

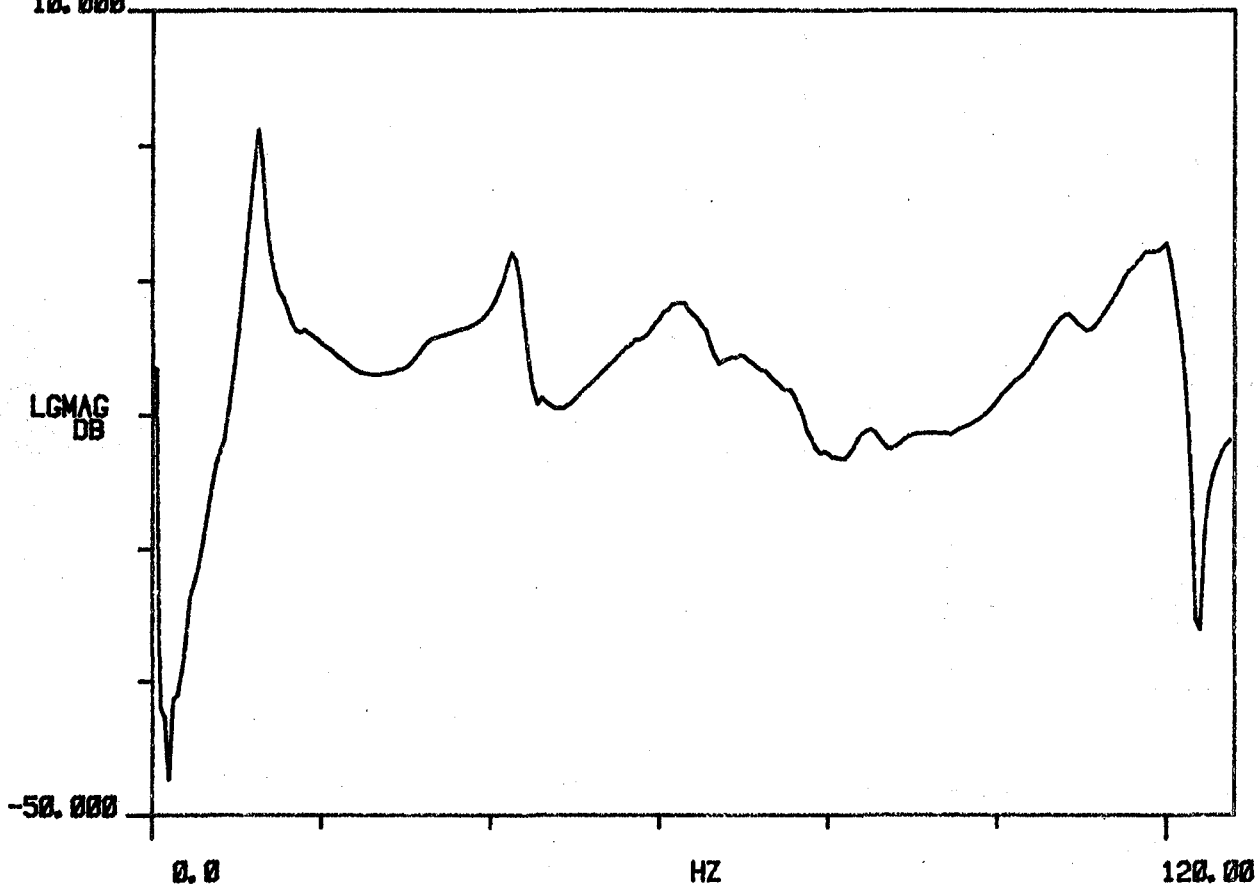
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.287	77.202	3.728	458.089	2.878
2	30.877	194.008	15.945	4.987	31.335
3	42.997	270.157	2.376	1.022	6.420
4	62.768	394.382	5.410	3.401	21.367
5	0.000	0.000	0.000	0.000	0.000
6	73.423	461.329	5.971	4.392	27.594
7	107.232	673.758	2.396	2.570	16.151
8	119.551	751.164	2.028	2.425	15.234

TRANS
10.000

R# 5

#A 325



FM4 BLADE 32. ACC. POS. #1. 3/31/82

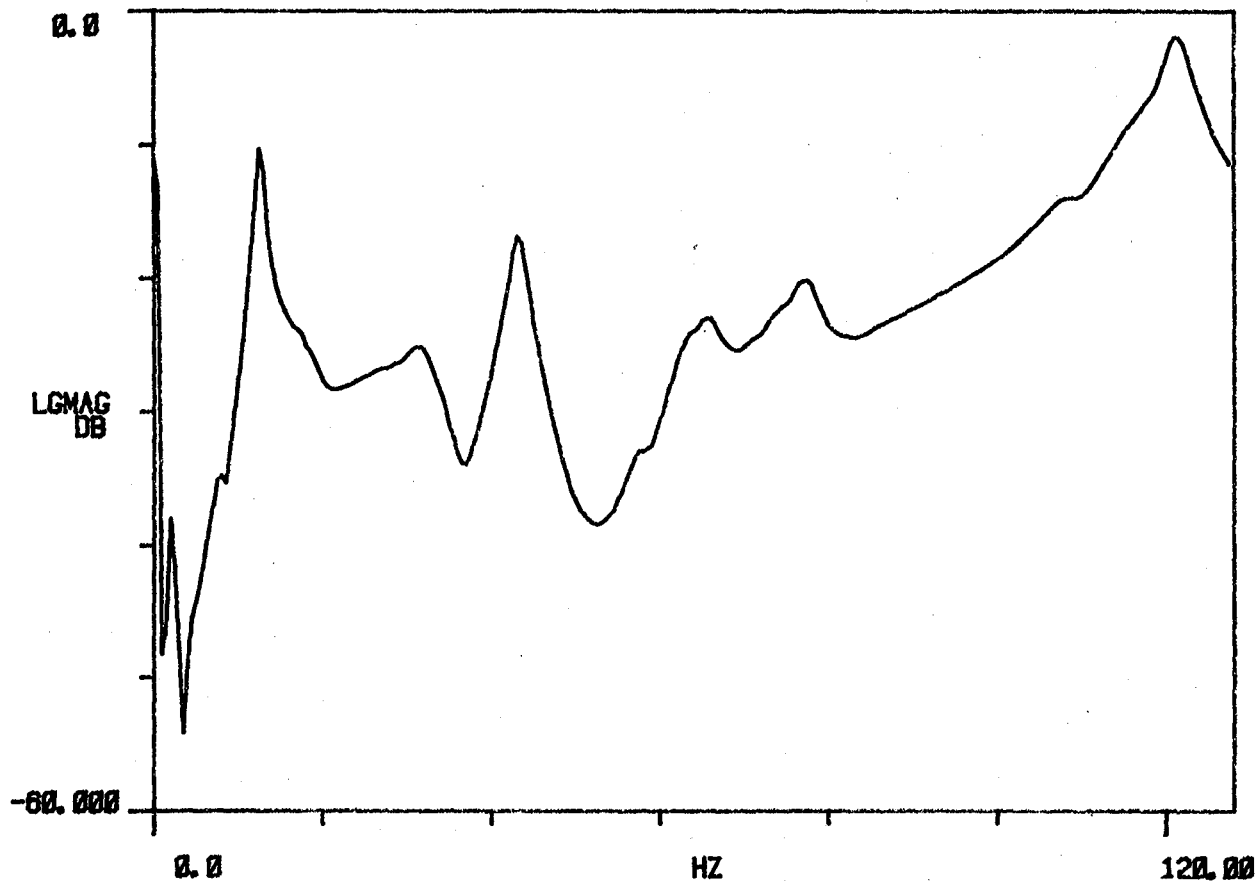
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	ζ	HZ	R/S
1	12.325	77.438	3.482	419.514	2.636
2	32.524	204.356	7.885	2.586	18.122
3	43.131	270.989	2.261	975.428	8.129
4	64.188	403.307	4.381	2.815	17.886
5	0.000	0.000	0.000	0.000	0.000
6	77.194	485.824	3.355	2.591	18.280
7	104.633	657.428	3.410	3.570	22.430
8	121.353	762.482	1.884	2.287	14.368

TRANS

R# 8

#A 325



FM4 BLADE 32. ACC. POS. #2. 3/31/82

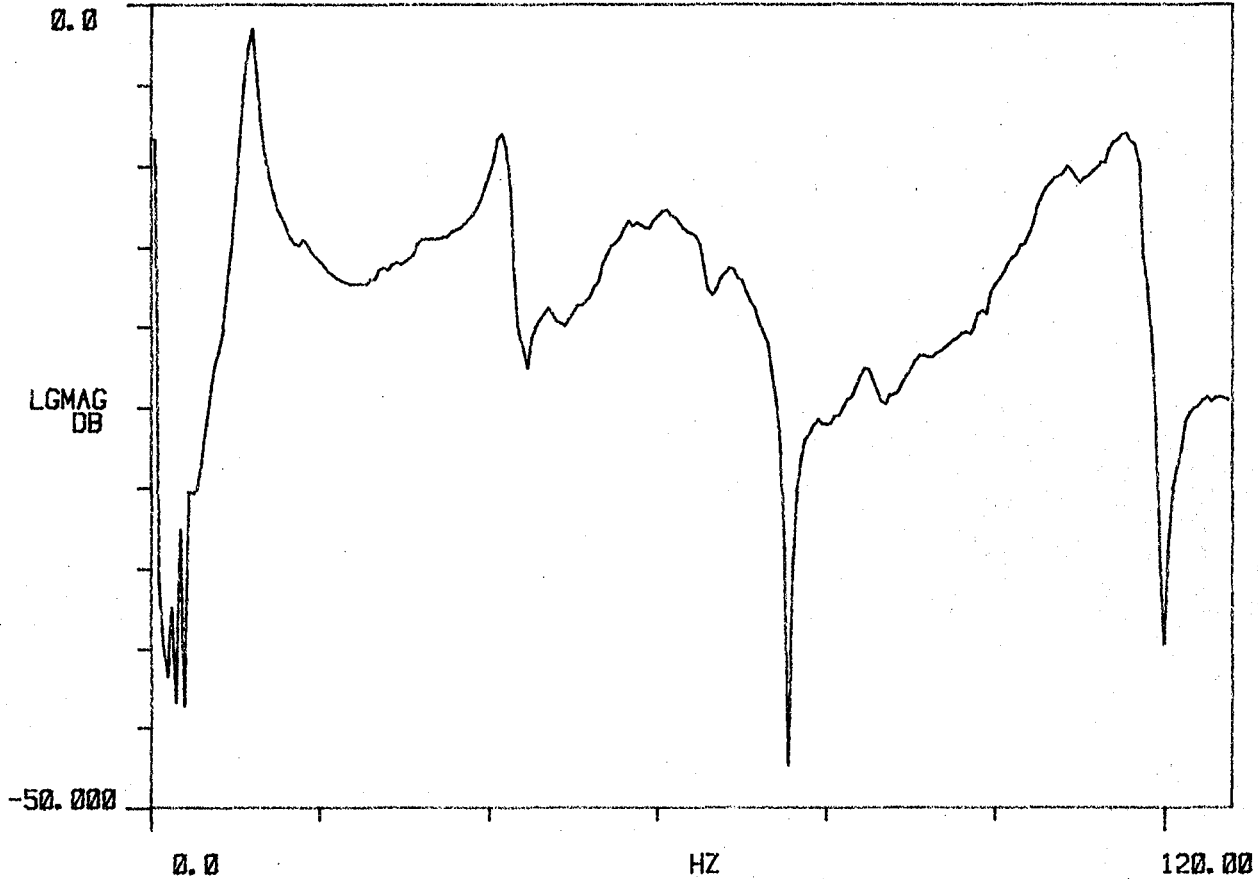
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	11.652	73.212	5.115	596.771 m	3.750
2	31.633	198.759	4.790	1.517	9.532
3	41.783	262.528	2.327	972.729 m	6.112
4	55.573	349.176	2.529	1.406	8.833
5	70.966	445.890	3.210	2.279	14.322
6	84.144	528.692	276.298 m	232.489 m	1.461
7	106.789	670.978	3.254	3.476	21.843
8	116.116	729.576	1.747	2.029	12.750

TRANS

R# 9

#A 325



FM4 BLADE 19. ACC. POS. 1. 10/82

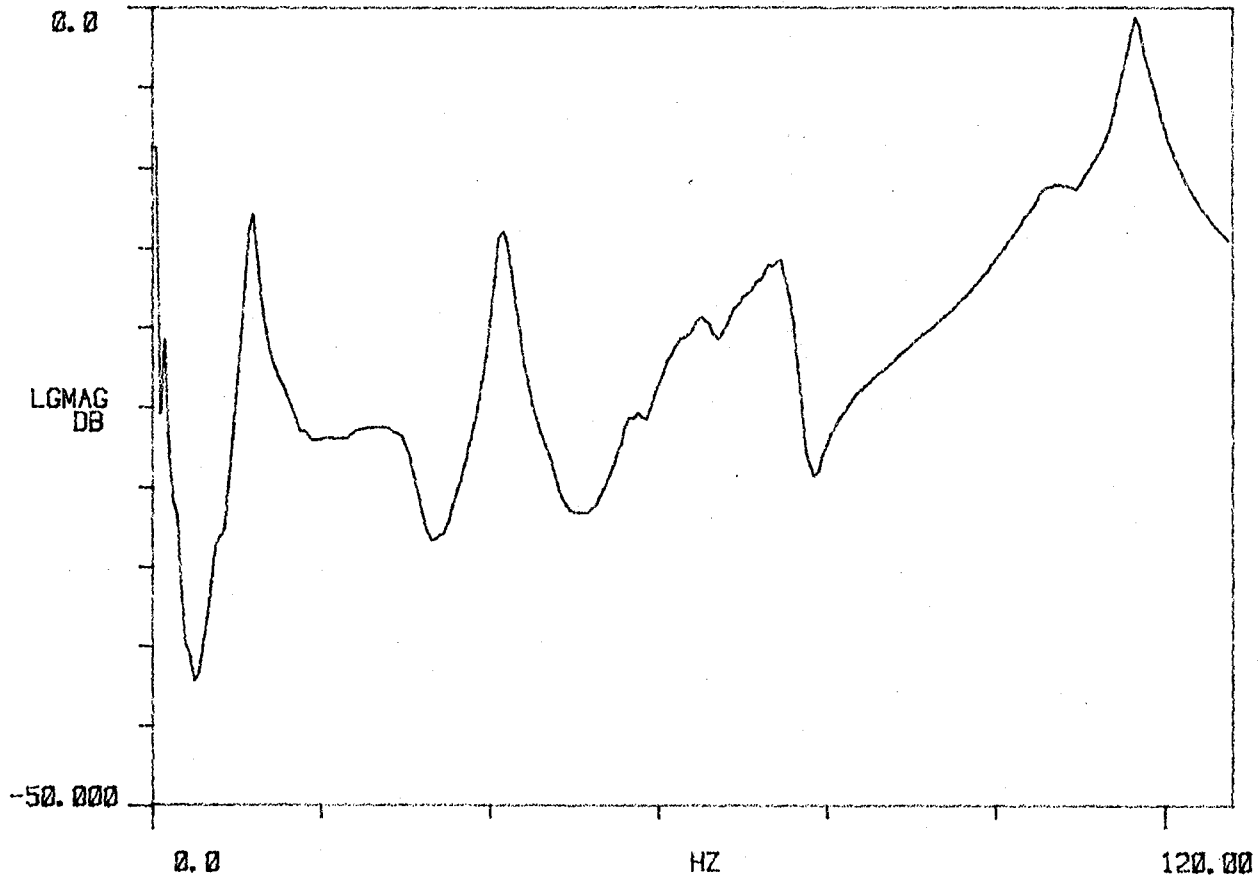
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	11.557	72.613	5.175	598.832 m	3.763
2	29.848	187.542	13.614	4.102	25.773
3	41.475	260.595	2.251	933.975 m	5.868
4	56.083	352.379	4.801	2.696	16.938
5	63.854	401.205	6.173	3.949	24.813
6	74.729	469.535	3.273	2.447	15.376
7	105.125	660.523	3.960	4.167	26.179
8	116.537	732.225	1.437	1.675	10.522

TRANS

R#: 10

#A: 325



FM4 BLADE 19. ACC. POS. 2. 10/82

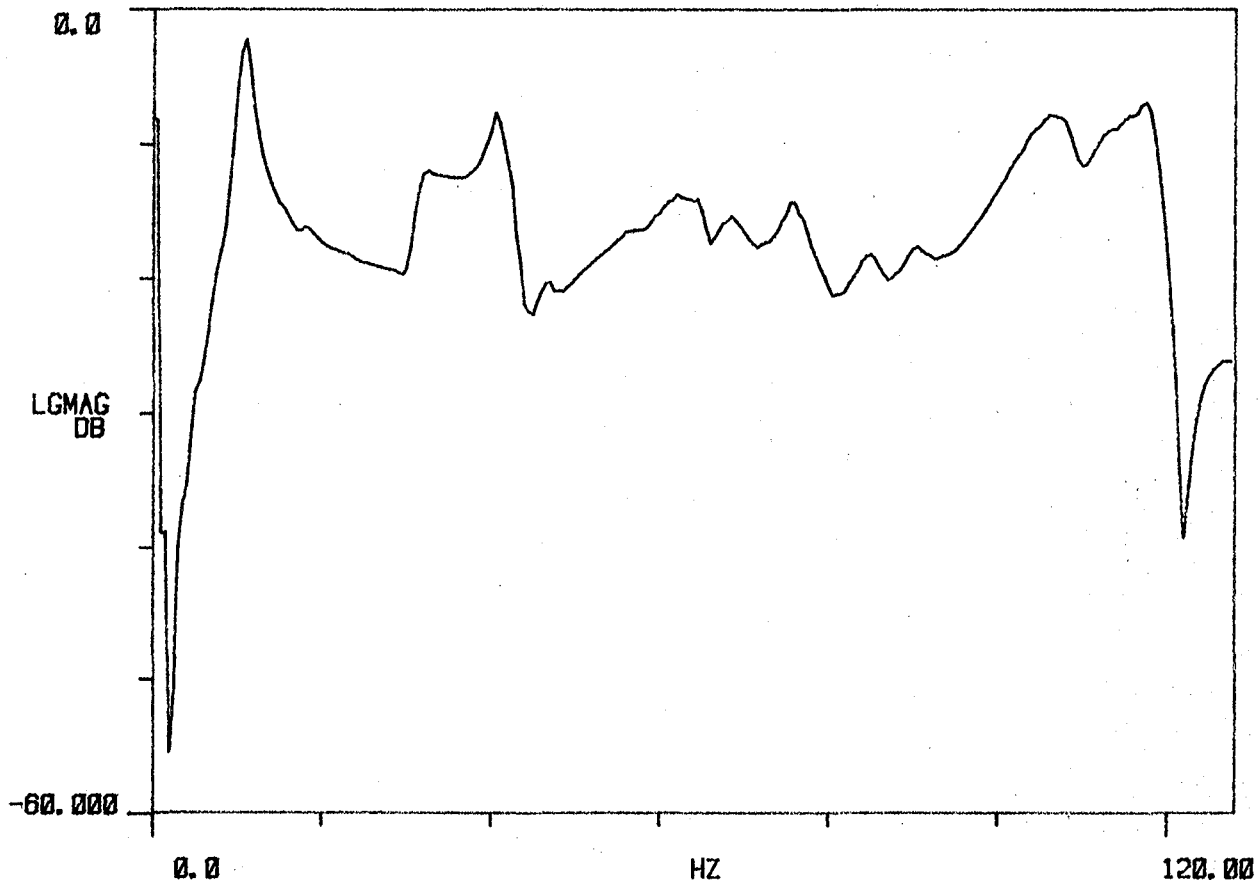
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	10.580	66.479	5.438	576.178	3.620
2	30.896	194.128	5.492	1.699	10.677
3	41.152	258.568	2.963	1.220	7.665
4	61.982	389.442	5.349	3.320	20.862
5	0.000	0.000	0.000	0.000	0.000
6	76.423	480.179	1.697	1.297	8.152
7	106.676	670.266	3.085	3.292	20.685
8	117.673	739.360	1.967	2.315	14.544

TRANS

R# 7

#A 325



FM4 BLADE 23. ACC.POS. 1. 10/82

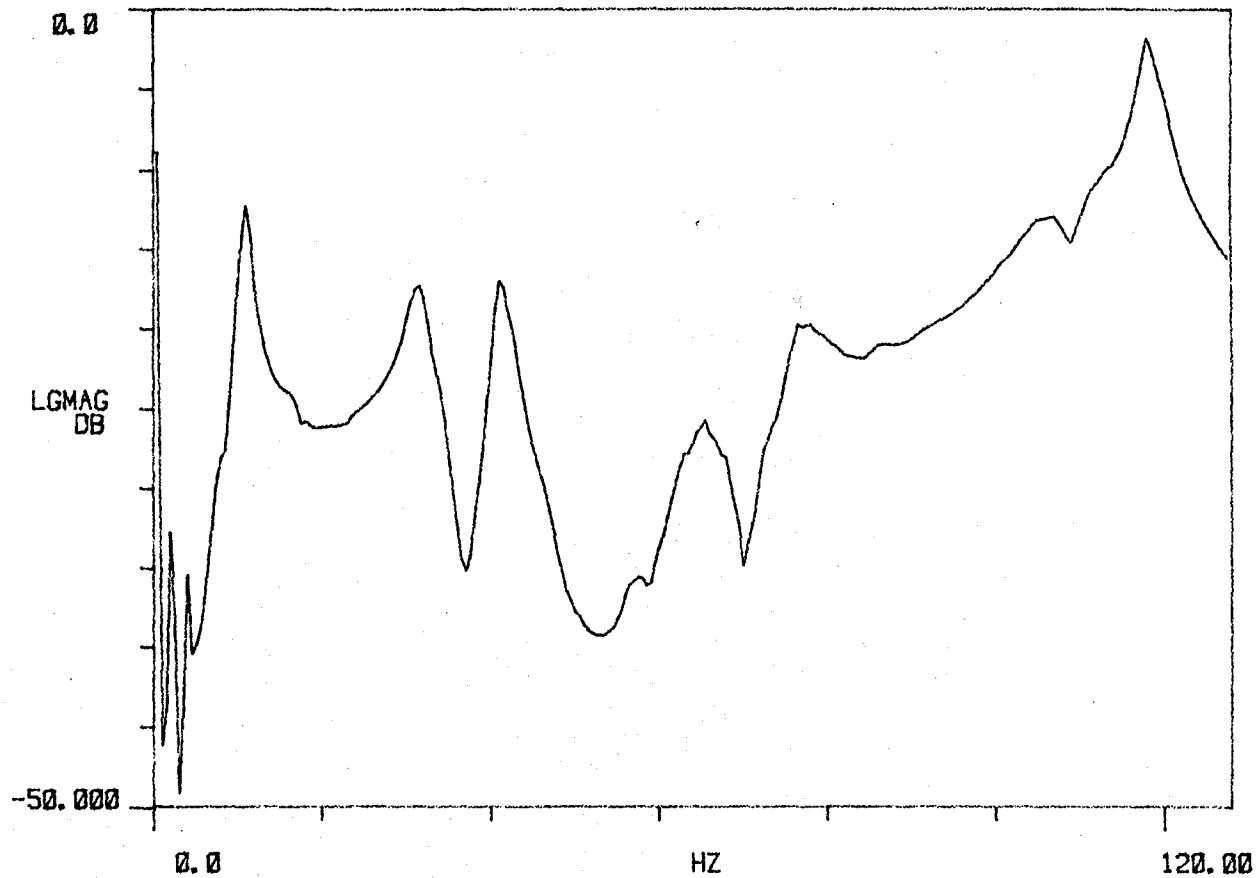
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	10.627	66.771	4.962	528.006	3.318
2	31.633	198.759	4.790	1.517	9.532
3	41.219	258.986	2.400	989.339	6.216
4	57.371	360.472	4.477	2.571	16.156
5	66.271	416.391	3.723	2.469	15.512
6	75.983	477.413	4.046	3.077	19.331
7	105.356	661.970	3.439	3.625	22.776
8	118.417	744.036	1.448	1.715	10.773

TRANS

R#: 8

#A: 325



FM4 BLADE 23. ACC.POS. 2. 10/82

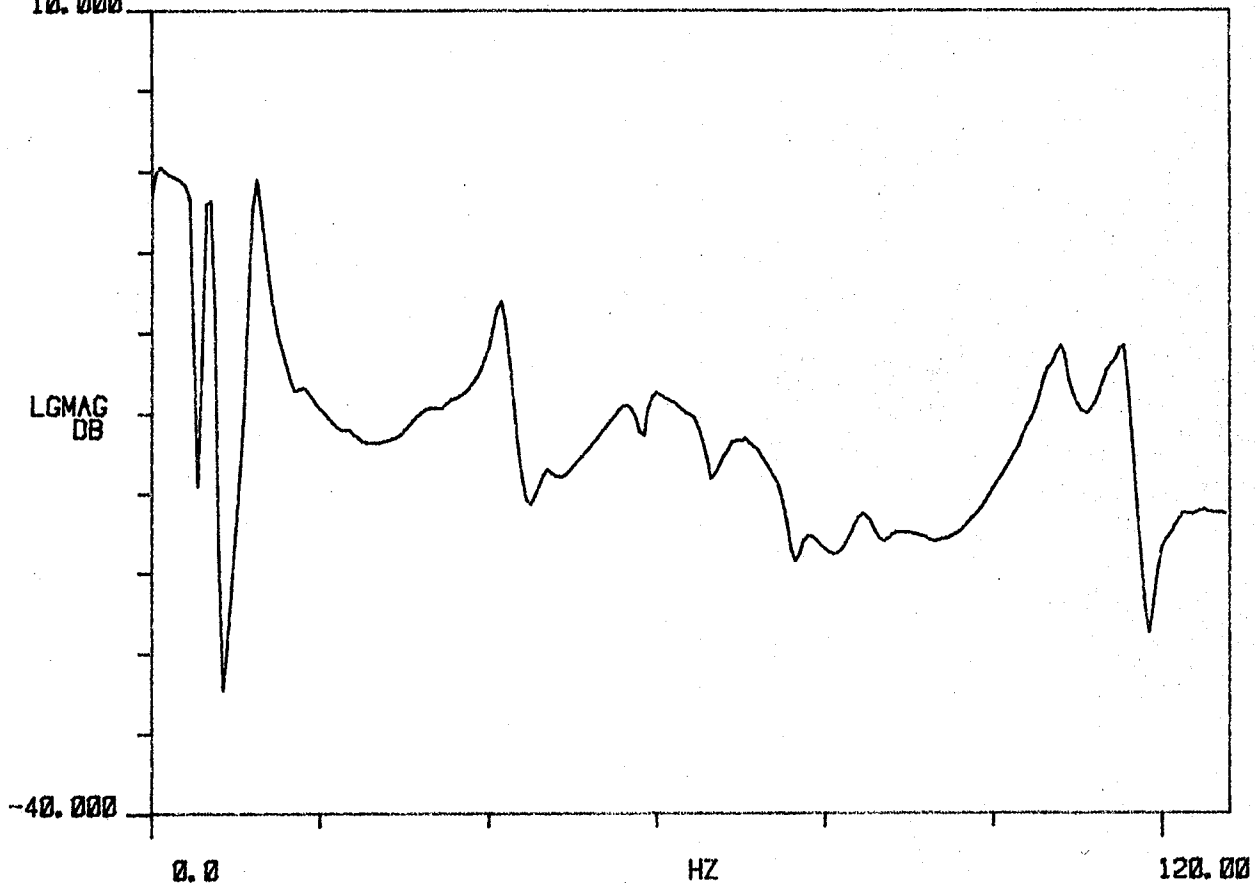
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.484	78.441	1.486	185.539	1.166
2	30.938	194.391	10.198	3.172	19.928
3	41.800	262.639	2.325	972.108	6.108
4	56.971	357.958	2.629	1.499	9.416
5	62.044	389.834	2.363	1.466	9.214
6	71.862	451.521	3.368	2.422	15.216
7	107.520	675.566	1.674	1.800	11.308
8	115.646	726.625	1.039	1.201	7.548

TRANS
10.000

R# 14

#A 325



FM4 BLADE 26. ACC. POS. 1. 10/82

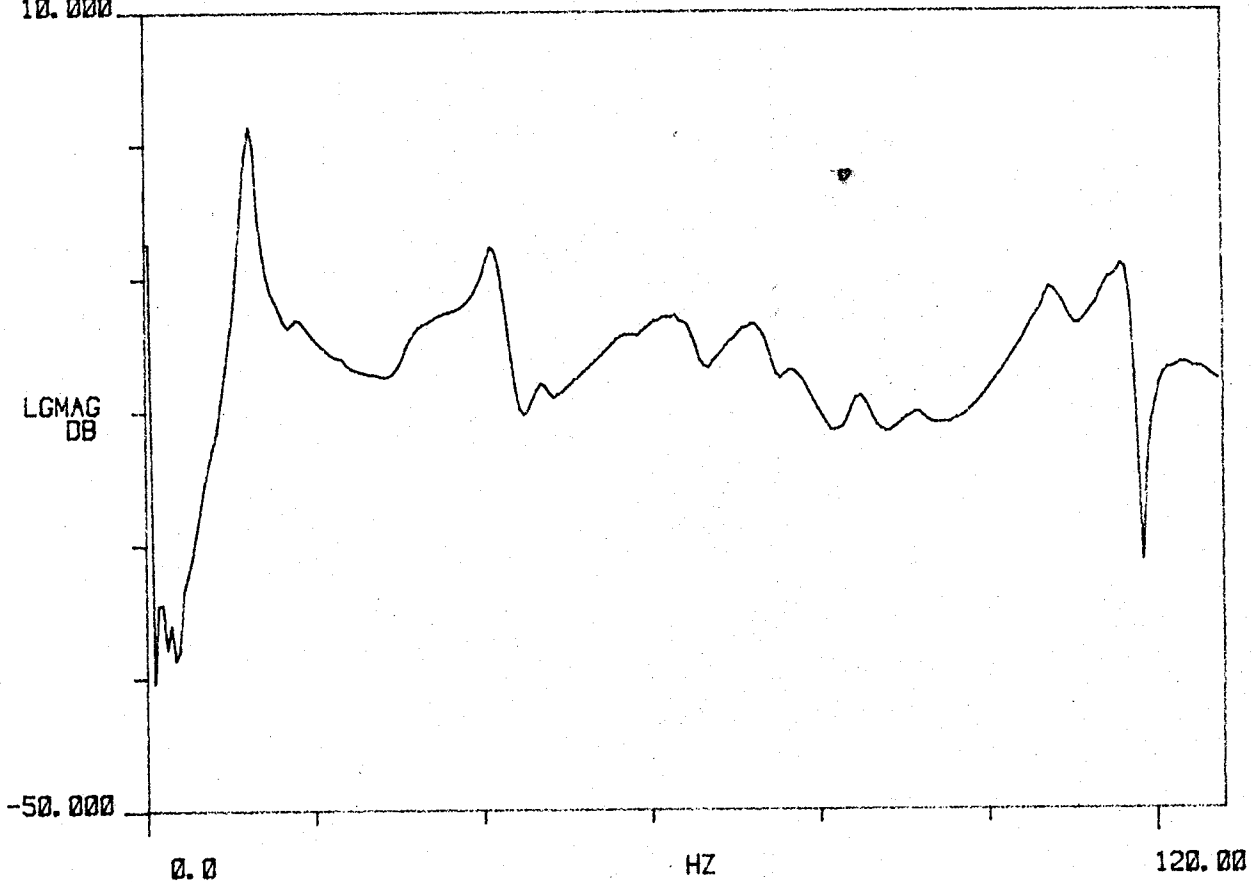
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.326	77.445	4.030	497.182	3.124
2	30.875	193.994	15.592	4.874	30.622
3	41.695	261.980	2.831	1.181	7.420
4	63.781	400.747	4.717	3.012	18.922
5	0.000	0.000	0.000	0.000	0.000
6	72.640	456.410	2.820	2.049	12.875
7	107.501	675.452	2.172	2.336	14.675
8	116.532	732.194	1.142	1.331	8.365

TRANS
10.000

R#: 5

#A: 325



FM4 BLADE 30. ACC. POS. 1. 10/82

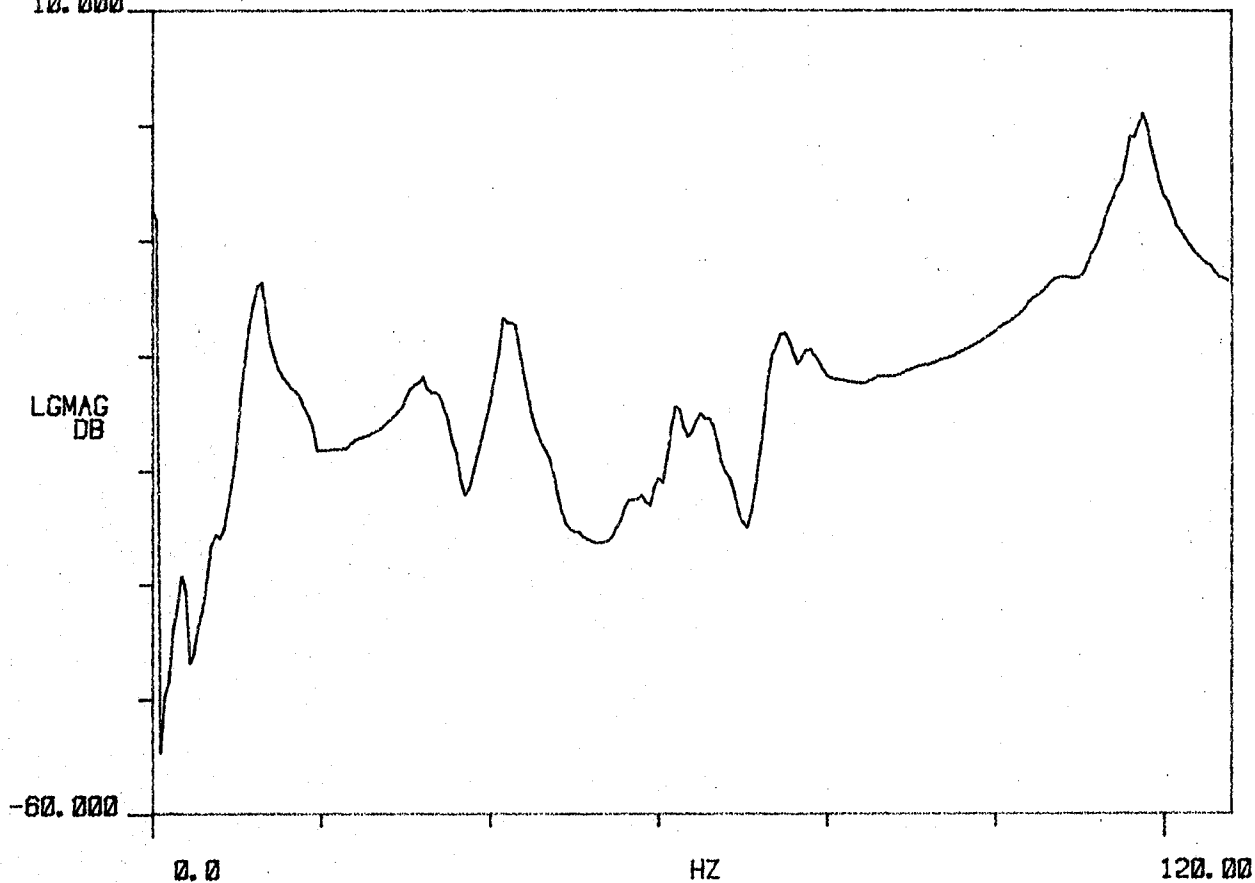
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.243	76.927	2.605	319.020	2.004
2	32.546	204.490	7.785	2.541	15.968
3	42.163	264.921	2.643	1.115	7.004
4	56.478	354.861	3.542	2.002	12.579
5	65.624	412.328	2.204	1.446	9.088
6	73.805	463.733	1.870	1.380	8.673
7	105.729	664.315	4.834	5.117	32.151
8	117.110	735.822	1.258	1.473	9.255

TRANS
10.000

R#: 3

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FM4 BLADE 30. ACC. POS. 2. 10/82

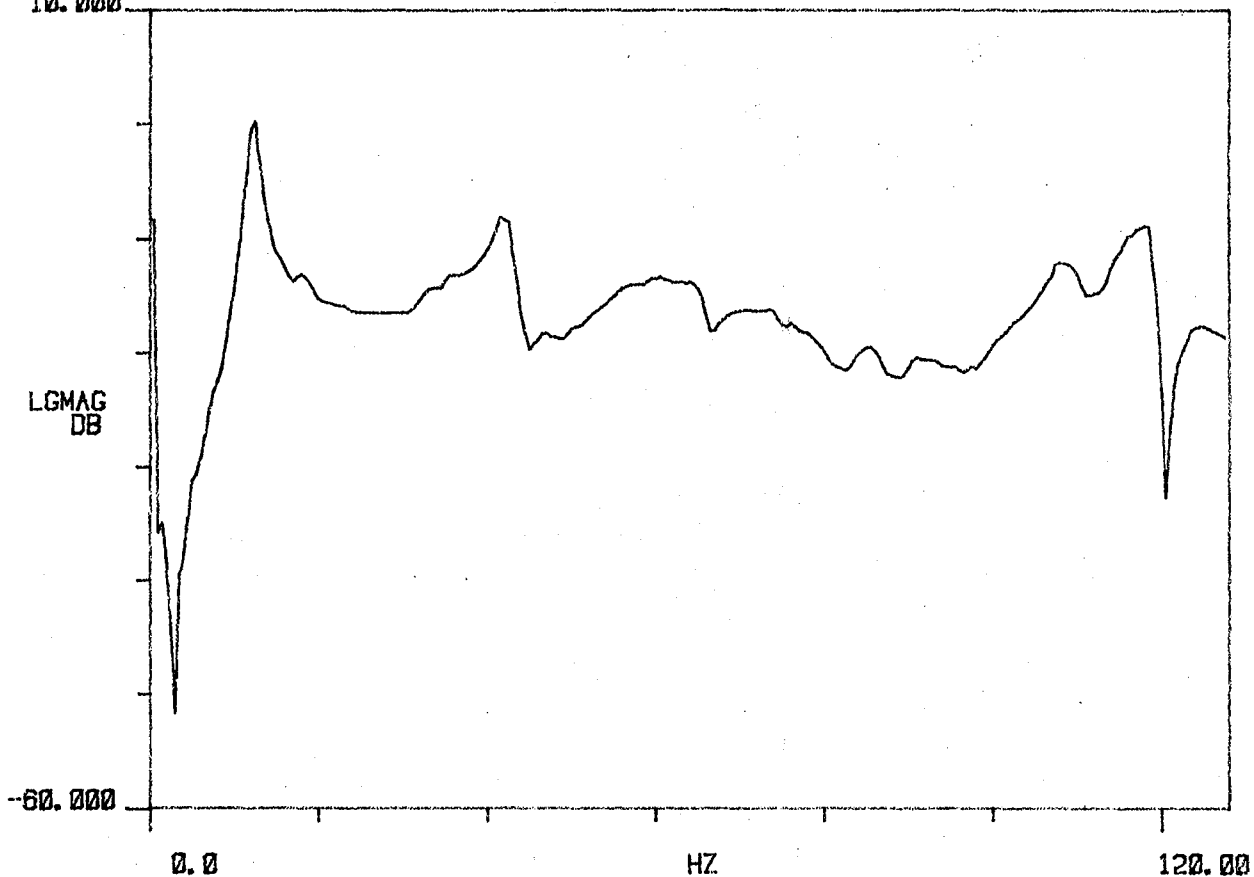
FREQUENCY AND DAMPING

MODE NO.	F R E Q U E N C Y		D A M P I N G		
	HZ	R/S	%	HZ	R/S
1	12.158	76.391	4.467	543.596 m	3.416
2	0.000	0.000	0.000	0.000	0.000
3	42.333	265.985	2.706	1.146	7.200
4	62.268	391.239	9.452	5.912	37.146
5	70.877	445.336	1.656	1.174	7.377
6	85.637	538.076	432.468 m	370.358 m	2.327
7	108.360	680.843	1.769	1.917	12.043
8	118.100	742.043	1.230	1.452	9.124

TRANS
10.000

R#: 12

#A: 325



FM4 BLADE 32. ACC. POS. 1. 10/82

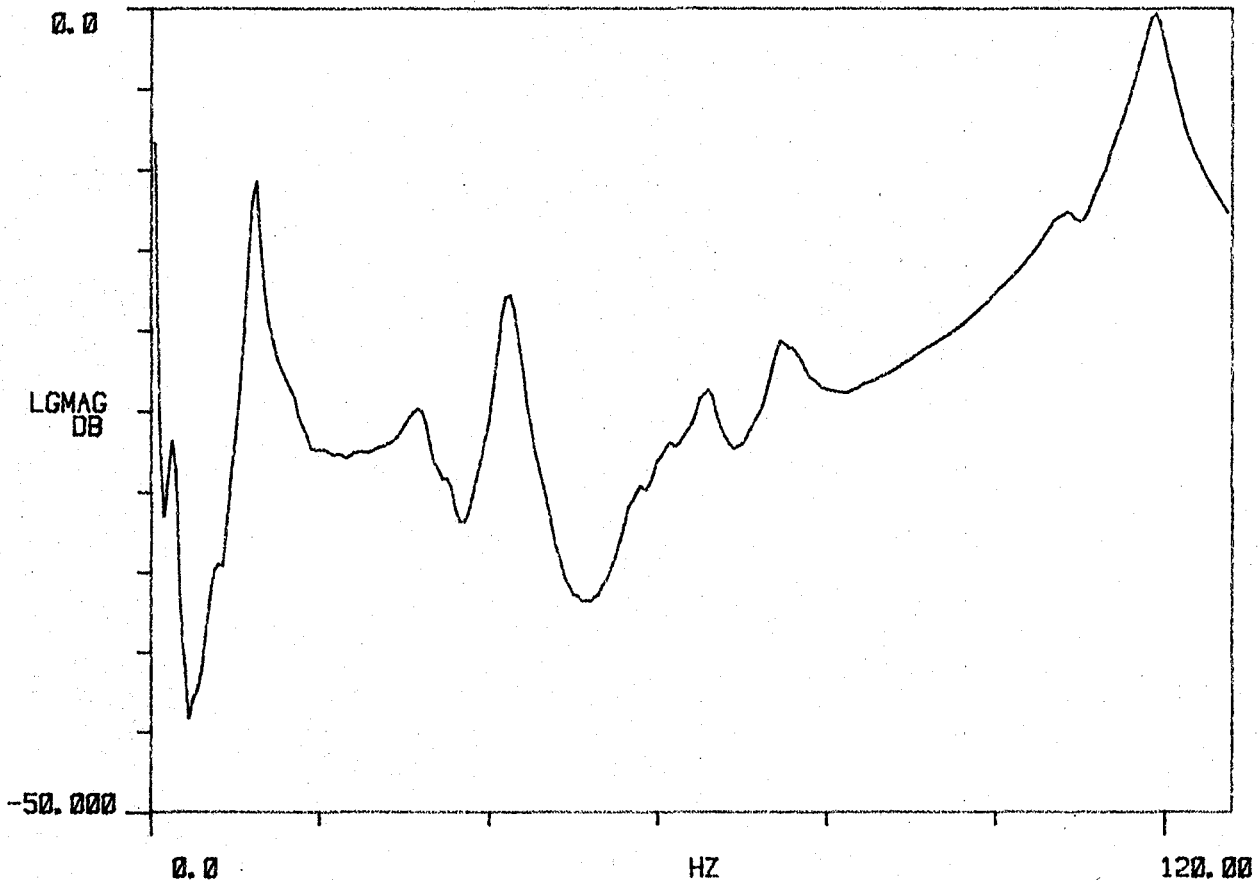
FREQUENCY AND DAMPING

MODE NO.	FREQUENCY		DAMPING		
	HZ	R/S	%	HZ	R/S
1	12.181	76.533	4.617	562.990	3.537
2	31.974	200.901	5.602	1.794	11.273
3	42.330	265.967	2.509	1.062	6.674
4	0.000	0.000	0.000	0.000	0.000
5	65.913	414.141	2.628	1.733	10.889
6	74.504	468.124	2.897	2.159	13.568
7	106.630	669.976	2.629	2.805	17.622
8	118.760	746.190	1.622	1.927	12.108

TRANS

R# 13

#A 325



FM4 BLADE 32. ACC.POS. 2. 10/82

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16. Abstract This report documents the shake tests performed on the first set of hydulignum fan blades for the 40- by 80-/80- by 120-Foot Wind Tunnel. The purpose of the shake test program is described. The test equipment and test procedures are reviewed. Results from each shake test are presented and the overall findings of the shake test program are discussed.					
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